APRIL
1955

SPECIAL V.H.F. ISSUE

Amateur Radio

1/-

Registered at G.P.O., Melbourne, for transmission by post as a periodical

THE BEST BY TEST FOR HIGH GAIN AND HIGH LEVEL AMPLIFICATION

"HAM" RADIO SUPPLIERS

(KEN MILLBOURN, PROP.)

5A MELVILLE STREET, HAWTHORN, VICTORIA

North Balwyn Tram Passes Corner, near Vogue Theatre. Phone: WA 6465

Money Orders and Postal Notes payable North Hawthorn P.O. Packing Charge on all goods over 10 lbs. in weight, 5/- extra.

Command Transmitters: Freq. 4—5.3 Mc., 5.3—7 Mc., or 7—9 Mc. Complete with valves and crystal £7/10/-

AT5 Transmitters, covers low freq. bands, also bandswitched 3 bands 2-20 Mc. using 6V6 M.O./xtal osc., 807 buffer/doubler, pair 807s in parallel; 6V6 grid modulator. All stages metered with 0-5 Ma. meter (250 Ma. F.S.D.); complete with all valves, gift at £9.

AT5-AR8 Junction Box and Cables, £2/10/-.

AR8 Cables ..... 7/6 each

AT5-AR8 Aerial Coupling Units, contain one 0-5 Ma. meter ext. thermo couple, single gang variable condenser, keying relay, aerial change-over d.p.d.t. 12v. 48 ohm relay, etc. Ideal for wrecking £2

Audio Filter FL8A, peaked at 1,000 c.p.s. Contained in metal case with input and output phone plugs. Ideal for c.w. reception. A Gift at ..... 25/- each

Aust. Wavemeter Type AWB1, high freq. 145 to 165 Mc. approx. Valve line up: 958 diode connected into two type 1N5 valves cascade connected d.c. amp. Complete with spare set of valves and 3" 0-1 Ma. meter. Circuit enclosed. Contained in flat grey metal carrying case. Packed ready for rail, £6/5/-

Bendix RA1B Power Supplies, 240 volt AC, 24v. at 1 amp. output 250v. HT, £5 each.

American I.F.F. Units, complete with Valves, less Genemotor ..... £4/17/6 each

Genemotor Power Supply, SCR522, 24v input, 150v. and 300v. output at 300 Ma. Includes relay, voltage regulator, etc. A gift at 35/-. Too heavy for postage.

Meters—0-5 Ma., square type, new 27/6

Meters—0-5 Ma., 2" round, scale 0-15, 0-250 Ma., A.W.A. AT5 type, less ext. shunt, 25/-

Meters—0-40, 0-120 Ma., separate connection, new 27/6

Meters—0-20 volt, 5 Ma. movement, square type, 2 inch, new 15/-

Meters—0-2.5 Amp. R.F., square type, 2 inch, new 15/-

Meters—0-5 Ma., 1½ Ma. movement, round type, 2 inch, new 22/6

Solor 28 pF. silver plated wide-spaced Condensers ..... 7/6 each

2 uF. 1000v. block type Chanex Cond., 12/6

Relays, A.W.A., Aerial Change-over type, 12 volt 27/6

English Carbon Mike Transformers, new, 5/-

Locktal Sockets ..... 1/6 each

Valve Sockets, ceramic, 8-pin Octal 2/6

Shielded Cable with two 12-pin Plugs .. 7/6

Five-core Cable, not shielded ..... 8d. yard

Co-ax Connectors, Ampenol type, male and female ..... 7/6 pair

Co-ax Connectors, male/female, small Pi type, new ..... 2/6 pair

Co-ax, indoor type, cotton covered ..... 1/- yd.

Co-ax Cable, any length ..... 2/- yd.

Output Transformer, well known make, 6,000 ohms c.t. to 600 ohms, 40 Ma. Max. level 30 db. New, to clear 35/-

NEW VALVES

1K4	5/-	6SS7	12/6
6C5*	7/6	6U7G	10/-
6C8G	7/6	7A4	5/-
6F5*	7/6	7B8	5/-
6F6*	10/-	12A6*	10/-
6K6G	7/6	12K8*	10/-
6K7*	10/-	12SJ7*	10/-
6K7G	7/6	12SK7*	10/-
6L7*	10/-	12SR7*	10/-
6L7G	7/6	807	25/-
6N7*	10/-	832A	70/-
6R7G	10/-	834	20/-
6SA7*	10/-	866	20/-
6SC7*	10/-	1625	25/-
6SJ7GT	12/6	5763	25/-
6SK7GT	12/6	EF50	10/-
		U10	5/-

884 Gas Triode 25/-

954 American 10/-

955 American 10/-

957 Acorn Triode. Filament: 1.25v. at 50 Ma., plate current 2 Ma. Ideal for portable equipment .. 10/-

* Metal Tube.

TESTED VALVES EX DISPOSALS GEAR

1A3	10/-	7C5	5/-
1A5	10/-	7C7	5/-
1K5	7/6	7F7	5/-
1K7	7/6	7G7	5/-
1L4	10/-	7N7	5/-
1S5	10/-	7W7	5/-
2A3	10/-	7Y4	5/-
2X2	10/-	12AH7	10/-
3A4	10/-	12C8	10/-
3Q5	10/-	12J5	10/-
6AC7	10/-	12SG7	10/-
6AG5	15/-	12SQ7	10/-
6BE6	15/-	807	10/-
6C4	12/6	809	50/-
6C6	7/6	813	60/-
6F8	10/-	815	50/-
6H6	5/-	829	60/-
6J5GT	10/-	832	50/-
6N7	10/-	956	10/-
6N8	15/-	1625	15/-
6SA7	10/-	1626	10/-
6SH7	5/-	1629	10/-
6SH7GT	4/-	2051	10/-
6SJ7	10/-	7193	5/-
6SK7	10/-	9002	10/-
6SL7	15/-	9003	10/-
6SN7	10/-	9004	10/-
6U7	10/-	EF50	7/6
6V6	10/-	OA4	10/-
7A6	5/-	VR150	15/-
7A8	5/-		

Command Receivers, 3 to 6 Mc., and 6 to 9 Mc. less genemotor; air tested £7/10/-

Command Receivers, 150—550 Kc., £9/10/-

AR8 Receivers, 11 valves, 6 bands, continuous coverage 150 Kc.—25 Mc., B.F.O., audio controls, calibrated dials £15

AR301 High Freq. Receiver, uses three 954s, one 955, six 6AC7 I.F. stages at 30 Mc. Easily converted to 144 Mc. Complete £6/10/-.

BC733D Crystal Locked Receiver. Tuning range 108 to 120 Mc. I.F. freq. 6.9 Mc. Valve line up: three 717A, two 12SG7, one 12SH7, two 12SR7, one 12SQ7, one 12A6. Also contains six miniature relays. Packed ready for rail. One Price ..... £7/10/- each

American Low Freq. and Broadcast Band Receiver R.A.X., 7 valves, 4 bands: 200-300 Kc., 300-500 Kc., 500-900 Kc., 900-1500 Kc. I.F. freq. 160 Kc. Calibrated vernier dial, etc. Ideal Q5'er. Complete with 28 volt genemotor £17/10/-

Six volt bayonet type Dial Lamps ..... 1/- each

Coils, small slug-tuned type, suitable for Converters, etc. 3/6

American Headphones, low impedance, complete with Cable 25/-

Phone Plug and 4 ft. Cable, American .. 4/6

2.5v. Filament Transformers 15/-

4v. Filament Transformers 15/-

LARGE STOCK OF CRYSTALS

100 Kc. R.C.A. Crystals £4

1,000 Kc. Crystal mounted in case with 10-pin valve socket and 4-pin Continental power plug 35/-

Marker Crystals, 3.5 Mc., 5 Mc., and 10 Mc. Crystals ground to any frequegncy. Price on request.

Following is a list of Crystal Frequencies available for immediate delivery, £2 each—

500 Kc.	5170 Kc.	7096 Kc.	8176.923 Kc.
775 Kc.	6000 Kc.	7097 Kc.	8182.50 Kc.
1777.5 Kc.	6200 Kc.	7100 Kc.	8183.5 Kc.
2050 Kc.	7010 Kc.	7109 Kc.	8317.2 Kc.
2075 Kc.	7012 Kc.	7118 Kc.	8318 Kc.
2716 Kc.	7013 Kc.	7121 Kc.	8320 Kc.
3482.5 Kc.	7020 Kc.	7125 Kc.	8488 Kc.
3503 Kc.	7021 Kc.	7126 Kc.	8500 Kc.
3509 Kc.	7022 Kc.	7130 Kc.	9125 Kc.
3511 Kc.	7023 Kc.	7134 Kc.	10 Mc.
3512 Kc.	7031 Kc.	7145 Kc.	10.511 Mc.
3515 Kc.	7032 Kc.	7156 Kc.	10.524 Mc.
3516 Kc.	7032.6 Kc.	7163 Kc.	10.530 Mc.
3528 Kc.	7048 Kc.	7174 Kc.	10.536 Mc.
3532 Kc.	7052 Kc.	7179 Kc.	10.544 Mc.
3539.3 Kc.	7062 Kc.	7202.3 Kc.	10.546 Mc.
3634 Kc.	7063 Kc.	8000 Kc.	10.563 Mc.
3640 Kc.	7064 Kc.	8017.5 Kc.	11 Mc.
3675 Kc.	7068 Kc.	8027 Kc.	12.803 Mc.
4285 Kc.	7072 Kc.	8028.5 Kc.	14.020 Mc.
	7089 Kc.	8092 Kc.	14.105 Mc.
4600 Kc.	7090 Kc.	8155.71 Kc.	14.325 Mc.
5000 Kc.	7093 Kc.	8171.250 Kc.	14.322 Mc.

WANTED TO BUY—RADIO PARTS, VALVES, TRANSFORMERS, RECEIVERS, TRANSMITTERS, ETC.

APRIL — — — — 1955
Vol. 23 No. 4

MSS. and Magazine Correspondence should be forwarded to the Editor, "Amateur Radio," C.O.R. House, 191 Queen Street, Melbourne, C.1, on or before the 8th of each month.

Subscription rate in Australia is 12/- per annum, in advance (post paid) and A15/- in all other countries.

Wireless Institute of Australia (Victorian Division) Rooms' Phone Number is FJ 6997.

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

VK2WI: Sundays, 1100 hours EST, 7146 Kc. and 2000 hours EST 50 and 144 Mc. No frequency checks available from VK2WI. Intrastate working frequency, 7125 Kc.

VK3WI: Sundays, 1130 hours EST, simultaneously on 3573 and 7146 Kc., 51.016 and 146.25 Mc. Intrastate working frequency 7135 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI: Sundays, 0900 hours EST, simultaneously on 3560 and 14342 Kc. 3560 Kc. channel is used from 0915 hours to 1015 hours each Sunday for the W.I.A. Country hook-up. No frequency checks available.

VK5WI: Sundays, 1000 hours SAST, on 7146 Kc. Frequency checks are given by VK5MD and VK5WI by arrangements on all bands to 50 Mc.

VK6WI: Sundays, 0930 hours WAST, on 7146 Kc. No frequency checks available.

VK7WI: Sundays, at 1000 hours EST, on 7146 Kc and 146.5 Mc. No frequency checks are available.

AMATEUR RADIO
JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

Published by the Wireless Institute of Australia,
C.O.R. House, 191 Queen Street,
Melbourne, C.1.

EDITORIAL

★

THE VINDICATION OF "JOHN GILPIN"

"John Gilpin was a citizen
Of credit and renown,
A well known, radio "Ham" was he
Of many a flood bound town."
(With apologies to Cowper.)

When Nature in her anger gathers the elements in her hands and hurls them at some unsuspecting locality, the unfortunate victims quickly find that normal and regular routine is suddenly swept away. The superficial conditions of men are reduced to a Common Denominator. The inhabitants of a disaster area learn that they now have to depend on the fellowship, the understanding, and intelligence of their immediate companions; the people who live round the corner or across the paddock. No longer do politics, personalities, and outlooks become important. No longer do files of paper, licences, permits, and controls add up to anything meaningful. All that is important is fellow man and his ability to play his part.

Some few weeks ago, when the flood menace struck at Northern New South Wales, the citizens found that they were in the midst of just such an experience. Where once, by lifting a telephone or pressing a switch, they could demand service, they found none, and authority was powerless to supply any. They were forced to consider the situation; to find among themselves, someone who had the ability and the initiative to supply their wants, to relieve them of their distress. That person was not hard to find.

In his humble shack, surmounted by towering poles, "John Gilpin" (previously rather suspect because of his "queer" habits of talking to others of his kind over the air) had notified the relief co-ordinator and was hard at work providing just that service the people lacked. Communications with the outside world were again established, the momentary needs were stated and help was assured.

Quickly the dejected realised that here indeed was one, who, in his own modest way, had trained himself to be of service to the community when the need arose. He hadn't announced his plans with high-pressure news releases, or long lists of detailed estimates. He hadn't declared this policy with acclamation, or derided that with contempt. He had quietly prepared knowing that, when the day of his testing arrived, he would not be found wanting. Those to whom he gave assistance will vouch for this and for his devotion to the cause of humanity.

Radio Amateurs throughout Australia, nay throughout the world, can be justly proud of the feats of that gallant band of enthusiasts who, using their own call signs, made their voices heard when all else was silent. "John Gilpin," the individual, had triumphed when all else had failed. He had proved that he could surmount all difficulties—that man was greater than the machine.

GENTLEMEN, you who did so much to raise the name of "Radio Amateur" to a zenith previously unattained, we salute you. May your sterling efforts be rewarded in a manner befitting your endeavour.

FEDERAL EXECUTIVE.

THE CONTENTS

The "Skeleton Slot" Antenna 2
Having Fun With "Skeleton Slots" 3
Low Noise R.F. Stage for 144 Mc. 5
Hints and Kinks—
Tuning SCR522 Receiver without a Crystal 6
Weatherproofed Ribbon Feed Line 9
24 Volt Relays on 12 Volts 9
The Silicon Crystal Noise Generator 7
Twin-Lead "Sprigs"—Two Antennae to One Feed Line 9
Max Howden, VK3BQ 11
National Field Day, Amendment of Date 11
Denmark Pays a Tribuate to VK1EG 13
Australian V.h.f. Records 13
Short Wave Listeners' Section .. 15
DX Activity by VK3AHH 17
Prediction Chart for April, 1955 .. 17
Fifty Megacycles and Above 19
Federal, QSL, and Divisional Notes 20
Correspondence 24

THE "SKELETON SLOT" ANTENNA

BY G. M. BOWEN,* VK5XU

There has been quite a deal of interest in the slot as an antenna since the technical details of the Sutton-Coldfield t.v. station were released in "Wireless World." As the original slot antenna had a very high wind resistance with its solid surround, it was only natural that the Amateurs who could see the makings of a good v.h.f. radiator in it, would set to work to see how much of the surrounding metal could be cut away without seriously affecting its performance.

G2MC, in the August issue of "W.W.," gave the details of a "skeleton" for the 144 Mc. band and in order to have something different to talk about at a lecture, I made up a model in about half-an-hour which provided us all with a night's entertainment. The construction is very simple and the accompanying diagrams should be sufficient guide; the diameters are not critical.

The antenna radiates as a broadside array with a polar diagram like two half wave dipoles spaced half wave apart and fed in phase. The resultant figure of eight pattern is elongated and results in an approximate gain of 4 db over a single dipole.

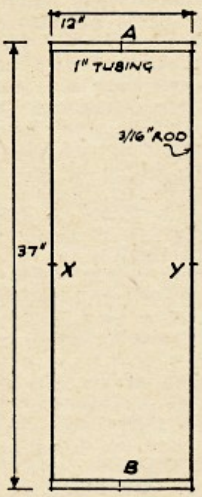


Fig. 1.

Maximum radiation takes place from the two short ends made from large diameter tubing as it is here that maximum current appears and that it does, can be proved by testing for horizontal or vertical polarisation with a simple dipole field strength meter. The dipole gives maximum reading when it is parallel to the two pieces of tubing, so that when they are horizontal the radiated wave is horizontally polarised.

Referring to Fig. 1, X and Y are high voltage, high impedance points, but as yet there is no data as to the exact value for the "skeleton." A and B are points of maximum current and therefore low impedance points which can be earthed if so required.

* 73 Portrush Road, Toorak Gardens, S.A.

Since our article on "Skeleton Slots" in February, 1954, issue of "Amateur Radio," we have received further articles by VK5XU and VK2NO describing further experiments and results obtained with them.

To complete the picture we are publishing both articles to give readers additional food for thought and to satisfy the urge to try something new.

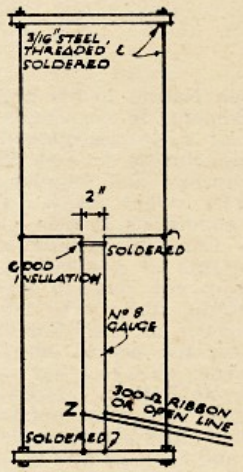


Fig. 2.

A quarter wave open line shown in Fig. 2 can be used as an impedance transformer and any line can be matched into the antenna. I found that 300 ohm ribbon matched in about one-third of the way up from B.

Fig. 3 shows an arrangement of feeding an unbalanced co-axial line into the two high impedance points X and Y. Some fanning out of the open line connections to the co-axial quarter wave

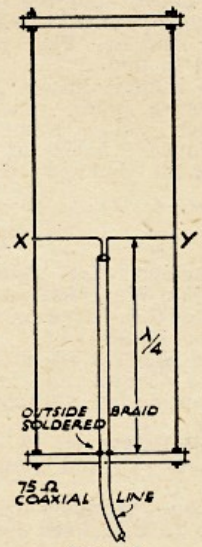


Fig. 3.

may be found necessary as the quarter wavelength of co-axial matching section will only need to be about 60% of 19" according to the velocity factor of the co-axial cable chosen.

Fig. 4 shows the quarter wave open wire stub affixed at right angles to the plane of the antenna. With this construction it is possible to add a reflector at the point where the stub is shorted. Its length will be an electrical half wave which will be approximately 38 inches.

When experimenting with reflectors and directors, I found that the use of reflectors gave the better results; better still, a reflector spaced 0.15 wavelength behind each 12 inch section of the antenna. In this case the reflectors were 5% longer than the length of an ordinary dipole (i.e. about 39 to 40 inches). The closer spacing reduced the radiation resistance and a re-adjustment of the feeder input was necessary to obtain correct matching.

By adjusting the distance between the two reflectors, the depth of the radiated beam can be altered, but as yet I have not made any quantitative tests to ascertain what gain could be expected. This particular aspect should be worth experimenting with, especially if readings can be obtained over some considerable distance.

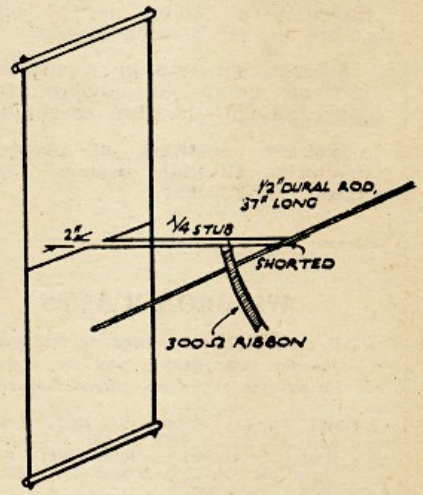


Fig. 4.

The single reflector raises the forward gain another 3 db and increases the front-to-back ratio as is usual; while there is quite a considerable improvement with the two, but how much I cannot yet say.

Fig. 5 should be self explanatory. Points A, B, C and D are at earth potential and therefore can be bonded together with the supporting mast passing through B and D, thus enabling the constructor to make a thoroughly rigid job which can be easily rotated. A third reflector could then be mounted a quarter wave length behind the feed points X and Y. The method for feeding the array, then, would be preferably as in Fig. 4.

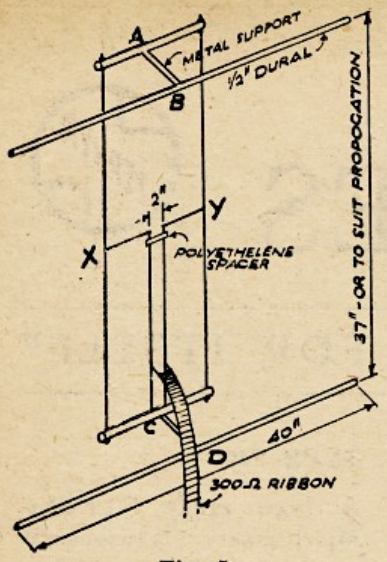


Fig. 5.
Spacing of Reflectors approx. 13 inches.

If a combination of any unlike metals is used in constructing the array, it is wise to give the finished array a fairly heavy coating of aluminium based enamel to stop corrosion of the joints in the damp weather. Make sure, too, that all joints are soldered if steel and brass are used, particularly where the long side pieces enter the larger diameter tubing. This will keep the ohmic losses down.

Having Fun With "Skeleton Slots"

BY DON B. KNOCK,† VK2NO

Although until now practically unheeded by VKs, something new and intriguing has hit the headlines (overseas) in the way of antennae. The "skeltonised" version of the aircraft type "slot" antenna, first appears to have originated in U.K., although passing reference has been made to it in "QST" (U.S.A.).

It remained for G2MC to evolve a practical version for 2 metres, with a full description in August, 1954, "Wireless World." I wish to draw attention also to a very informative article on the subject in "R.S.G.B. Bulletin" for January, 1953, dealing with the stacking, for v.h.f. work, of "Skeleton Slots." (An article on this subject was published in "A.R." of February, 1954, p.2—Ed.)

Co-incidental with a return to Amateur v.h.f. activity after an enforced absence of six years at VK2NO, some QRP 144 Mc. gear was put together, and a start made with a plain dipole. With a transmitter boasting all of 2 watts on the 6J6 p.p. triode p.a., excellent contact was established with most Sydney stations. One or two, however, remained "hard to get" from my coastwise "edge of beyond" location.

In the search for better signal strength, the dipole grew a reflector, became rotatable, and things began to look up. Then I thought of the skeleton slot and got busy.

Two such slots for 144 Mc. were made up, fed in phase, with one above the other, and backed by reflectors. The immediate results border on the fantastic, most of the v.h.f. gang around Sydney being sceptical about the 2 watts producing such a "mighty" signal.

There is no fuss about tuning up this array—for it is broadly resonant. The field strength indicator, a 0-1 Ma. meter with a 1N34 diode and small dipole, shows a high degree of forward gain, several feet in front of the array. Tests made with reliable observers up to 60 miles distant indicate a back-to-front ratio of 7 S points, which is around 30 db, and a very good discrimination off the ends of the array.

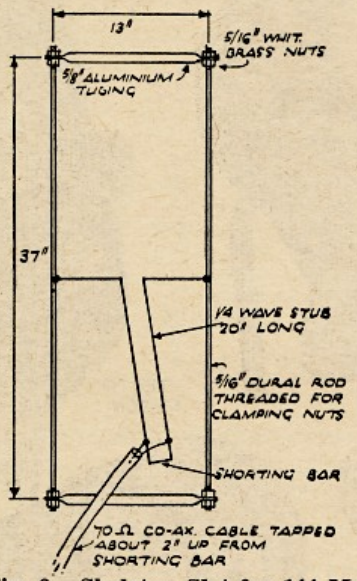


Fig. 6.—Skeleton Slot for 144 Mc.

The sketch (Fig. 6) shows the structure of the skeleton slot for 144 Mc., cut to hit around 144.6 Mc. Two 37 inch lengths of 5/16 inch rod, dural in my case, are threaded at the ends for hex. nuts. Two 14 inch lengths of tubing are flattened at the ends and drilled for 5/16 inch clearance at 13 inch centres. Clamped in position by the nuts, the assembly becomes rigid and virtually self-supporting. The centres of the 14 inch tubes at top and bottom are "cold" for r.f. and therefore no insulation is necessary for mounting on a pole or any structure.

Now comes the really important point about the **skeleton** as distinct from the metal surround slot—although a physically vertical arrangement, it radiates **horizontally** polarised waves, a decided advantage with interesting possibilities for lower frequencies. The feed points at the centres of the 37 inch upright rods approximate 600 ohms, so that if desired an open line may be applied, or a quarter wave stub with shorting bar for 70 or 300 ohm line. G2MC found that the stub can be brought down vertically and terminated on the bottom cross tube member. Alternatively, the stub can be arranged horizontally on a strut from the supporting pole, and a 40 inch reflector placed as combined shorting bar and reflector.

Fig. 7 shows how the two skeleton slots are arranged at VK2NO. A length of 1¼ x 1 inch timber 10 feet long is used as the foundation, with three struts 20 inches long. Two of the struts are at positions from the centres of the slots, to hold the respective reflectors, and the centre one is for the junction of the feedlines.

From the centres of the 37 inch rods, 34 inch lengths of 16 gauge wire are arranged, being brought together on 2 inch polystyrene spacers to form a uniform feedline. These lines, from each slot, are paralleled and thus the effective impedance is 300 ohms, the feedline from the array being Telcon 300 ohm ribbon.

It will be appreciated that with these two slots phased and paralleled (make sure you don't transpose the lines), no matching stub is necessary. If you wish to use low impedance line, that is simple too. Just make the paralleled lines from the slots 50 inches long each, instead of 34 inches (as for 300 ohms), join on the 70 ohm co-ax or ribbon, and away you go.

The results obtained with this little array are so promising that the writer is harbouring slot ideas for other bands. For instance, a skeleton slot 9 ft. 6in. by 3 ft. 3 in. should be interesting on 6 metres; remember—**horizontal** radiation with a **vertical** array! What about one 22 ft. by 7 ft. for 21 Mc., hanging vertically from that unused pole? You can pull it around with two ropes for directivity!

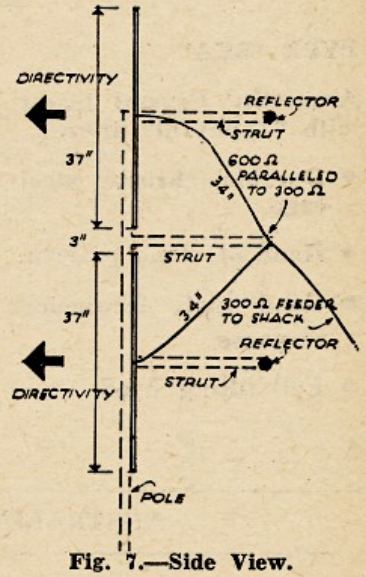


Fig. 7.—Side View.

There are other considerations, too, subject also to trial and result. It may be possible to use a 6 metre skeleton slot **inside** a 15 metre one, and rotate the two together! When on 6 metres the larger metal rectangle might contribute somewhat to the normal slot "surround." My reason for telling this yarn about the skeleton slot is mainly because of its convenience in erection. It is not claimed that there are any magical qualities, but it most certainly is a fine performer on 2 metres.

† 43 Yanko Avenue, Waverley, N.S.W.

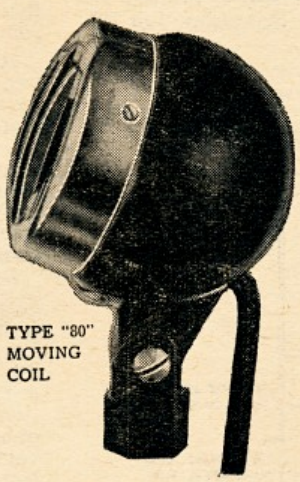
ZEPHYR MICROPHONES

"THE MICROPHONE THAT SPEAKS FOR ITSELF"

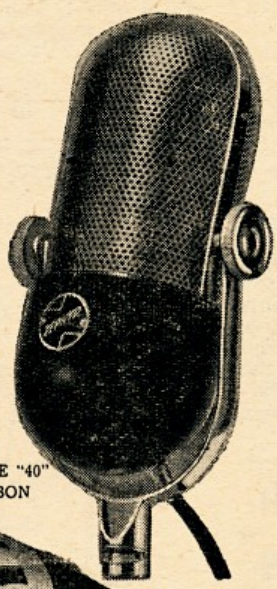
TYPE "80"

A high quality Moving Coil Microphone of striking appearance and fidelity.

- **Ideal for transmission of voice or music.**
- **Good appearance.**
- **Solid cast case, finished in stoved black enamel, full tilting head.**



TYPE "80" MOVING COIL



TYPE "40" RIBBON

TYPE "40"

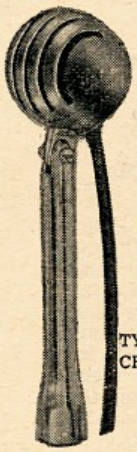
A high grade Studio Microphone, reasonably priced, for those requiring high fidelity.

- **Imported magnets, highly efficient generator.**
- **Fully protected against dust and filings.**
- **Rotatable cage—360°.**
- **Chrome copper cage, black bakelite base, and steel ginbles.**

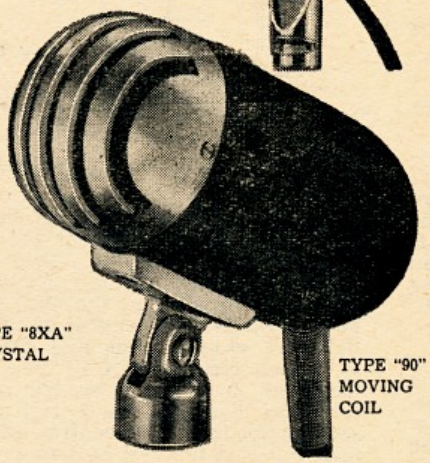
TYPE "8XA"

A quality Crystal Insert with "Zephyrfil" filter.

- **Durable chrome steel cage.**
- **Hand or stand pattern.**
- **Good high frequency response.**
- **Full tilting head.**



TYPE "8XA" CRYSTAL



TYPE "90" MOVING COIL

TYPE "90"

Precision built Moving Coil Generator provides good quality reproduction.

- **Light weight, durable chrome and baked enamel metal case.**
- **Full tilting head.**
- **Excellent sensitivity.**
- **Robust construction.**

AUSTRALIAN MADE — — FOR AUSTRALIAN CONDITIONS

Manufactured by—

ZEPHYR PRODUCTS PTY. LTD.

58 HIGH STREET, GLEN IRIS, VIC.

(Box 2, Armadale P.O., Vic.) **Phone: BL 1300**

AVAILABLE FROM ALL LEADING TRADE HOUSES

LOW NOISE R.F. STAGE FOR 144 Mc.

BY F. G. BAIL,* VK3YS

Here is a description of a high gain low noise r.f. amplifier stage for the 144-148 Mc. band. It can be added to an existing receiver or fed straight into a mixer-oscillator circuit to make up a two tube, high performance converter, along the lines of a the suggested arrangement shown.

THE tube used for the r.f. amplifier is a twin-triode 6J6 push pull connected, this circuit (Fig. 1a) providing about the highest gain, commensurate with a good signal to noise ratio, that is attainable in one r.f. stage. Noise due to random electron flow within a tube is at a minimum with triodes, a factor which is of practical use in receivers on v.h.f's. The p.p. arrangement reduces the loading on the input circuit, enabling a relatively large grid inductance to be used, so that a good step-up ratio from antenna coil to grid coil is obtained. This, of course, gives a substantial voltage gain ahead of the grids.

The 6J6, with its common cathode, is particularly suited to this application; there being no flow of r.f. current to earth at this point in a p.p. Class A circuit, the effects of cathode lead inductance are eliminated. There are no difficulties, of course, in obtaining 6J6s or their English equivalent, the ECC91.

The tube requires neutralisation, and this is achieved with small disc condensers made as described later.

CONSTRUCTIONAL DETAILS

An earthed plate (Fig. 2) across the tube socket provides shielding between the grid and plate circuits. Brass shim 0.004" thick was used, although clean tinplate should suit the purpose equally well. The holes H.H. serve to bring through the insulated plate leads to the neutralising condensers. It fits snugly across the tube socket between pins 3 and 4 and pins 7 and 1. Pin 3 (the earthed heater pin) is soldered onto the shield, as is also the centre screening pin of the socket.

A solder lug, pointing away from the socket, on each of the bolts fastening the socket to the chassis, provides further support when bent up parallel with and soldered to the shield. If the ends of this shield are turned back at right angles, for say ¼" to form flanges, rigidity is assured.

* 60 Shannon Street, Box Hill, E.12, Victoria.

A Teletron ST57L/2 (shielded) socket was used, and the mounting saddle in this series is so orientated with respect to the pin connections as to suit the above arrangement.

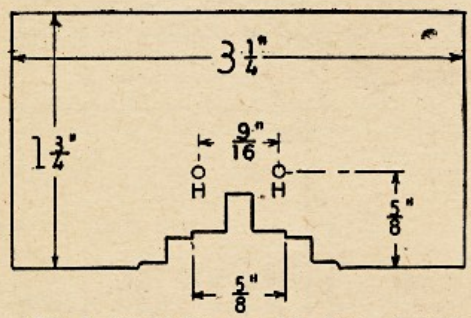


Fig. 2.—Shield for p.p. 6J6 stage, showing cutout to allow fitting over the socket and its associated fixing bolts.

NEUTRALISING CONDENSERS

A single way resistor strip (Fig. 3), having four free lugs between the mounting lugs, was used as a support for the screw adjustment of the neutralising condensers (as well as for the grid coil). It will be seen that lugs 1 and 4, which should be tapped with a ⅛" screw thread through their rivet holes, each have a brass nut soldered onto them at this position to carry the neutralising condenser screws. The tapping of the rivet holes alone did not give sufficient rigidity to these adjusting screws, but with the addition of the nuts this problem was overcome.

After the tapping has been done, insert the adjusting screws (¾" x ⅛" brass machine screws) with the nuts run on about half way, then slightly tighten the nuts—lock nut fashion—onto the lugs. Check to see that the screws turn easily but without wobble, holding the nut against turning with fingers or pliers, and then solder the nuts to the lugs.

To the tail end of each screw solder a disc, ⅝" diameter, of thin brass or copper. Similar discs are soldered to the ends of the plate wires which are brought through the shield for this purpose. For maximum rigidity these wires can be supported on tiny standoff insulators, or a resistor strip, located between the tube socket and the grid coil mounting strip. Two ⅜" holes were drilled through the end of the chassis to permit adjustment of the neutralising condensers.

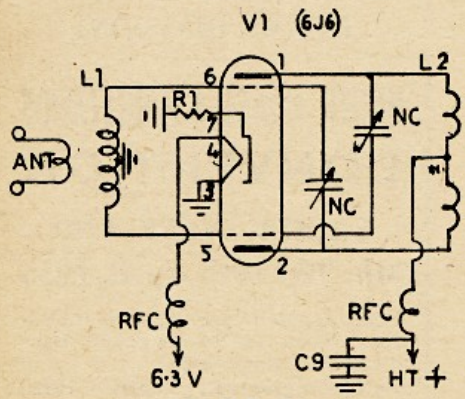
COILS

Wire size number 20 s.w.g. enamelled. The grid coil (L1) consists of eight turns, centre tapped, ¼" inside diameter and spaced to occupy a length of ½". The centre tap is earthed via a short direct lead.

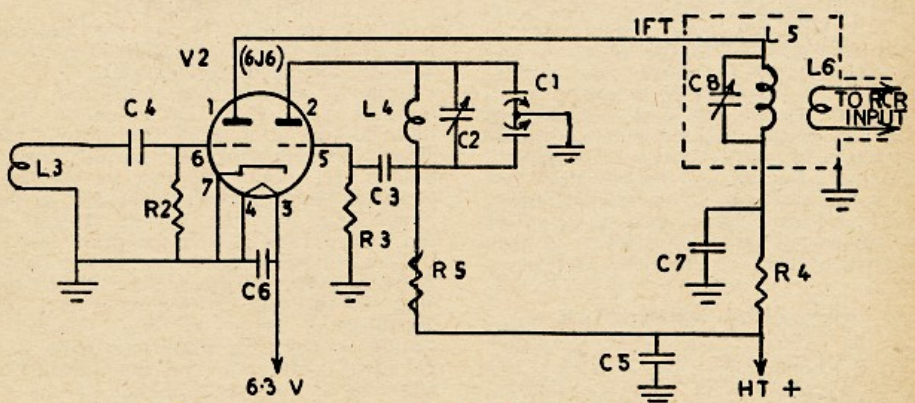
Antenna coupling coil four turns, wound over centre of grid coil and connected to a two-pin socket fixed behind it.

The plate coil (L2) is soldered directly to pins 1 and 2 of the tube socket, and is so wound as to provide a ¼" space in the centre for an output link or the grid coil of the following stage. It has six turns ⅜" diameter, and the overall length is approximately ¾". If this coil is arranged so that the centre tap is on the side nearest the chassis, adjustment of the output coil is facilitated and the plate feed r.f.c. is kept out of the way. Half an inch of lead on this choke is sufficient to enable it to clear the coil and be led away to one side.

The r.f.c. used came from the American I.F.F. set. These chokes consist of



(A) R.F. Stage.



(B) Mixer-Osc. Section.

Fig. 1.

C1—Oscillator tuning (see text).
C2—3-12 pF. trimmer.
C3—25 pF. N.P.O. (zero drift) ceramicon or silver mica.
C4—220 pF. Hi-K ceramic or midget mica.
C5, C7, C9—500 pF. Hi-K ceramic or midget mica
C6—330 pF. Hi-K ceramic or midget mica.
C8—50 pF. trimmer.
N.C.—Neutralising condensers (see text).

R1—60 ohms, ½ watt carbon.
R2—1 megohm, ½ watt carbon.
R3—15,000 ohms, ½ watt carbon.
R4—1,000 ohms, ½ watt carbon.
R5—10,000 ohms, 1 watt carbon.

22 turns of number 28 or 30 enamelled wire, the diameter being ¼" with a winding length of approximately 7/16".

NEUTRALISING PROCEDURE

Set the neutralising condensers to about ⅛" spacing as a convenient starting point. With the antenna connected and the r.f. amplifier in operation, feeding into a mixer or existing 144 Mc. receiver, sundry "joeys" and a high hiss level will probably be heard due to regeneration in the amplifier. Tune in to a relatively strong signal, then disconnect the h.t. supply to the r.f. amplifier (leaving the heater on). The signal will still "ride through" due to tube capacities, etc.

With an insulated screwdriver, e.g. a length of ¼" polystyrene filed at the end to form a screwdriver point, adjust the neutralising condensers for minimum signal. Reconnection of the h.t. supply should now bring the amplifier into normal operation with freedom from oscillations.

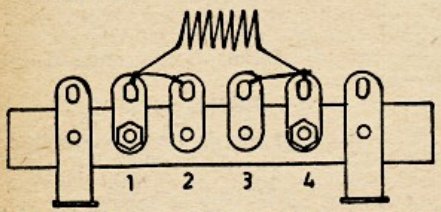


Fig. 3.—Resistor Strip mount for r.f. stage grid coil and neutralising condensers.

The main receiver tuning control, particularly if it is one with a reasonable reduction ratio, often provides a convenient means of keeping the signal "in tune" for such tests, being in effect an additional vernier control.

If a signal generator, etc., is used to supply a signal for v.h.f. receiver alignment and adjustment, it should be so placed that the signal is picked up via the antenna to preclude the possibility of direct radiation getting into the receiver. Small temporary antennae may help in this regard.

A h.t. supply of 100 volts is sufficient for the amplifier, the current drain being in the region of 20 Ma.

Inasmuch as it is a broad-band circuit, no difficulty was experienced in obtaining a sufficiently even response over the whole of the two metre band.

The balanced input is particularly suited for use with balanced feed lines, in this case 300 ohm ribbon feeder. Some modification to the antenna coil may be required for other types of line. In so far as co-axial feed line is concerned, probably the best method, in order to preserve the balanced input feature, is to use a "balun" (balance to unbalance, impedance transformer) between the line and the amplifier input. Such a device, made from a piece of 75 ohm co-ax, will transform a 75 ohm unbalanced line to 300 ohm balanced output.

TWO TUBE CONVERTER

In the writer's case the r.f. amplifier was combined with the 2 metre 6J6 converter described in "Amateur Radio," January, 1954.

The complete circuit of the arrangement finally used is shown in Fig. 1a and Fig. 1b, whilst the chassis diagram (Fig. 4) shows the layout of the major parts, and essential dimensions. The condenser across the mixer grid coil was dispensed with as optimum results were obtained with a three turn coil (L3) ⅜" diameter fairly close wound, and coupled about half way into L2. Too much coupling here can result in pulling of the oscillator, and also tends to make neutralisation ticklish.

The oscillator coil (L4) consists of four turns ⅝" long, with an inside diameter of 5/16". This gave more band-spread than the coil originally used.

The oscillator tuning condenser C1 is an Eddystone 15 x 15 pF. split-stator (180 degree rotation) cut down, with the aid of a jeweller's saw, to one stator and one rotor plate per section. C2, a Ducon type TS2A 3-12 pF. N.P.O. ceramic trimmer, mounts directly onto the stator supports of C1. When adjusted to about half capacity, it sets the oscillator to the low frequency side of the band. The i.f.t., which should be enclosed in a shielding can, tunes to the converter output frequency of 7.4 Mc. Keep the plate lead from the mixer to the i.f.t. as short as possible, to reduce any tendency towards oscillation in this stage. The i.f.t. coil details are:—

L5—28 turns close wound on ⅝" former, wound with No. 26 s.w.g. d.c.c.

L6—8 turns wound over bottom of L5, No. 26 s.w.g., d.c.c.

The tuning dial is a National "Velvet Vernier" control ex the "TU" series of disposals tuning units.

Current drain of this converter is about 27 Ma. with 100 volts h.t. If the converter is to be enclosed in a cabinet, then it is as well to select one which provides for a reasonable amount of ventilation rather than an "air-tight" type.

The tubes and the i.f.t. mount above the chassis, other components below. In this way, the possibility of oscillator drift, due to heat radiation from the tubes, is reduced.

When feeding into a receiver using a standard 455 Kc. i.f. channel, the frequency drift of the converter, after a few minutes warm-up, is negligible. A T9 note is obtainable when receiving c.w. provided a properly filtered power supply is used. "Stand-by drift" is eliminated by leaving the converter on during transmission periods.

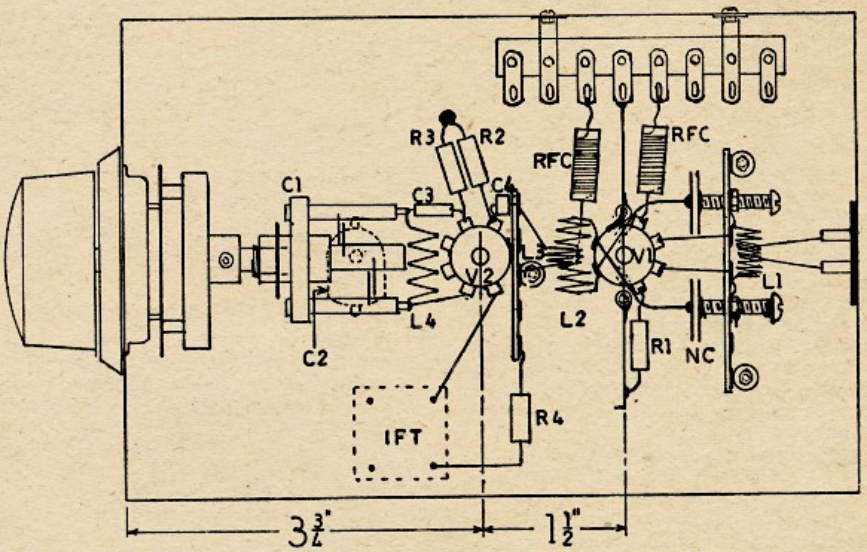


Fig. 4.—Underneath view of chassis. Chassis size: 8 x 5 x 2½ inches.

HINTS AND KINKS

TUNING SCR522 RECEIVER WITHOUT A CRYSTAL

This is an idea for the 144 Mc. enthusiast for tuning the SCR522 receiver without the need of a crystal.

Remove **one** of the oscillator coils marked A, B, C, or D, whichever you like. Mount in a small can, preferably aluminium. Procure one defunt crystal holder and mount the can on the base of the holder, connecting the coil to the pins. Plug into the crystal socket of the band which still has a plate coil.

Turn the controls to the 144 Mc. band. Tune the slug on the plate coil and the slug on the coil in the new can for oscillations, re-adjust the condenser tuning controls for maximum gain, and we have a nice receiver, the stability of which is as good as with the crystal.

To the fastidious, the screws on both slugs could be extended to take knobs, and once the band is found, you could tune across the band with ease. The oscillator becomes the old t.p.t.g. That's all there is to it.—VK4XL.

THE SILICON CRYSTAL NOISE GENERATOR*

BY WILLIAM L. ORR, W6SAI

On the DX bands and on the very high frequencies the amount of noise generated by the receiver becomes a limiting factor in weak signal reception. The problem, therefore, is to design a suitable front-end for the receiver that contributes the least amount of noise and the maximum amount of signal amplification. A great many hours of time have been spent putting cascode r.f. stages in receivers, pulling out 6SK7s and putting in 6AK5s, and building grounded-grid pre-selectors.

The baffling enigma in such undertakings is that it is very hard to determine whether such improvements merely boost the gain (and noise) of the receiver or actually hold the set noise down while giving a lift to the signal. Many fellows have become extremely unhappy when they have found out that their new preselector-creation will not allow them to read a signal that is pushing S6 on the receiver meter.

NOISE GENERATORS

Some time ago a simple thermionic diode noise generator was described for Amateur use in determining the efficiency of the input circuit of the receiver.† This noise generator consisted of a vacuum tube diode operating in a temperature limited condition. This means that there is sufficient plate voltage to saturate the available filament emission, and that if the plate voltage is increased the plate current will remain constant. Control of the plate current can therefore be regulated by varying the filament voltage.

Certain diodes, when operating in this condition, will generate a substantial amount of "hiss" or random r.f. noise. This hiss is of a very steady amplitude and may be used for measuring the sensitivity of the receiver.

The easier it is to hear a given amount of diode hiss over the inherent receiver noise, the more sensitive is the receiver. The diode hiss is proportional to the diode plate current, so a measurement of the excellence (or lack of same) of the receiver may be found by comparing the diode current to the amount of hiss heard in the receiver output.

A very well shielded signal generator could be used instead of the diode tube, but signal generators emit a signal on the order of milliwatts, and it requires expensive shielding and attenuation circuits to get down to the microwatt level that is needed for a signal-to-noise check. Some form of generator that starts from zero signal and works up is much better than one that starts with too much signal and works down!

The diode tube noise generator has never quite "caught on," since it has three basic faults:

1. The choice of the diode tube is critical. Only a few of them (the most expensive ones, naturally) will work above about 50 Mc. This washes out the two metre band where a noise generator is sorely needed.

Many years ago a "noise generator" article would have made the author a likely candidate for the straight jacket. Today there is a big field of application for just such a device. So big, that we have reprinted from "CQ" this greatly improved version of the silicon crystal noise generator. It is so simple that it could be "thrown together" in a half-hour.

2. The diode generator needs both a filament and plate supply. It also needs some means of controlling the filament supply over quite a large range. This calls for a variable voltage transformer or a high wattage rheostat.

3. If the supply is a.c. operated, trouble will be encountered with line pick-up of stray radio signals that will introduce an error into noise measurements. Batteries will add weight and cost to the unit.

THE SILICON CRYSTAL

An excellent substitute for the saturated diode tube is a silicon crystal. When a small current is passed through a silicon crystal in the direction of highest resistance, a constant r.f. noise of small amplitude is generated.‡ No filament supply is needed, and the exciting voltage for the crystal may be obtained from a few flashlight cells. The silicon crystal is the only type that will perform this feat. Geranium crystals will not work. This washes out the 1N34 type crystal. The war surplus 1N21 and 1N23 silicon crystals are excellent performers, and are still available on the surplus market at low cost. They have been used for noise generators up to 3,000 Mc.

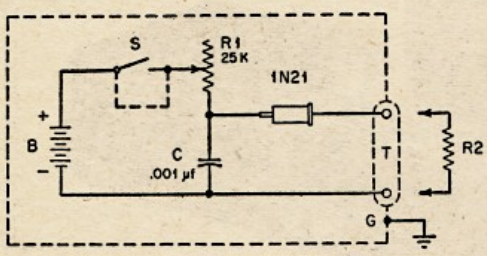


Fig. 1.—Wiring Schematic.

The crystal diode noise generator is a relatively high impedance source of noise, while the diode tube can be considered as a low impedance constant current generator. This fact must be taken into account when one uses the crystal type generator. All comparative signal-to-noise measurements must be made at the same impedance value. A comparison cannot be made if different impedance loads are used. Since most Amateurs have one standard feed line value, the generator can be set for this value and no trouble will be encountered. This is a fairly small price to pay for such a handy device!

CONSTRUCTION OF A CRYSTAL GENERATOR

Where else can you get so much for so few parts? Look at Fig. 1! The noisy crystal and C form a closed circuit at radio frequencies, placing the generated noise directly across the antenna terminals of the receiver, which are connected to the terminal strip T. Across C is placed the d.c. current supply. A maximum current of six milliamperes is needed, so four small "pen like" cells will last for over a year. The current is controlled by R, the calibrated potentiometer, and the switch S (mounted on the back of R) is used to turn the unit off when it is not in use. The whole generator is built into a small metal box that acts as a shield can for the unit. A ground terminal lug is bolted to one top corner of the box to connect the box to the receiver ground terminal so that no r.f. potential will exist between the generator box and the receiver.

The silicon crystal and the condenser C must be mounted to the terminal strip T by very short leads. Extreme care must be taken when the wire leads are soldered to the crystal. The crystal should be held with a damp rag and the connections made very quickly with a hot iron. If you hold the crystal tightly in one hand, I assure you that you will not let it get too hot! If you are foxier than I was, you might take a Littelfuse holder and convert that into a crystal holder. I was too lazy to do this, and took the easy way out.

Since the flashlight batteries will last their shelf-life in this unit, it is permissible to wire them right into the circuit. Be sure to tape the exposed ends of the battery so they will not short out to the case. A small metal clamp can be used to hold the batteries in place.

If the receiver has a co-axial receptacle input, a matching plug may be put on the noise generator and connection made between the two with a short piece of co-axial line.

Only one thing is missing now. A composition resistor equal in value to the desired line impedance at which the measurements are to be taken is placed across the output terminals of the noise generator. A small one-half watt resistor will be satisfactory. If the co-axial plug and line are used, this resistor should be mounted inside the generator. The unit is now complete and ready for operation.

OPERATION OF A GENERATOR

A typical test set-up for the checking of signal-to-noise ratio of a receiver is shown in Fig. 2. As mentioned before, the resistor R2 is a non-inductive composition resistor having a value equal to the input impedance of the receiver, or to the chosen impedance at which the checks are to be made. The noise generator is connected to the receiver

* Reprinted from "CQ," June, 1952.
† B. Goodman, "How Sensitive is Your Receiver," "QST," Sept. 1947, p.13.
‡ S. N. Van Voorhis, "Microwave Receivers," Vol. 23, Radiation Laboratory Series, McGraw Hill Book Co., N.Y.C.; W. I. Orr, "A Practical Crystal Noise Generator," "Radio and Television News," June, 1951.

and the case of the generator is grounded to the chassis of the receiver. An output meter¶ is connected to the audio circuit of the receiver and the receiver is adjusted as follows:

The **a.v.c.** and **b.f.o.** are both turned **off**. The **r.f. gain** control is placed full on, and the **audio** control is advanced until a reading is obtained on the output meter. This arbitrary reading is taken as the zero reading. or reading of natural receiver noise. There should be no pick-up of random signals in this noise, or readings will be in error. (If you don't get any noise from the receiver under these conditions, the overall gain is too low; you don't need a noise meter, you need a new receiver!)

The noise generator should now be turned on, and the knob turned until the receiver output meter registers a 3 db increase. (This corresponds to a voltage increase of 1.41 times the "zero" or original value.) The potentiometer reading on the dial scale now becomes the criterion of signal-to-noise ratio for that particular receiver. The less the reading (more resistance in the diode circuit), the better the signal-to-noise ratio of the receiver being tested.

The readings taken with this unit are arbitrary and cannot be referred to as "so many db above thermal noise." But they do give a ready means of comparing various changes that are made in the receiver. Different receivers may be compared under the same conditions, using the same load resistor.

You will find some startling things that may turn up during receiver checks. Some receivers simply refuse to "put

¶ Any meter capable of reading a.f. output signal of the receiver; usually the "output" range of a multimeter across the speaker output terminals will give sufficient reading.

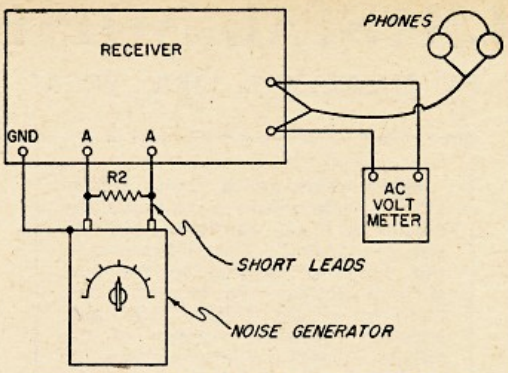


Fig. 2.—A typical set-up for Signal-to-Noise Ratio Measurements.

out" when a 52 ohm input load is used. This is a handy thing to know if you contemplate a new receiver—especially if you are using RG-B/U feedline! Some receivers will exhibit plenty of gain and "hop," but will fall down badly when this acid test is used. Others will have good signal-to-noise ratios at some frequencies, and poor ratios at other frequencies. Some cannot be aligned properly at both ends of the bands! You might also find that maximum signal-to-noise settings of the r.f. padders and trimmers do not coincide with the settings for maximum gain. This will really throw you for a loss if you are aligning your receiver by the signal pick-up method! If the receiver is aligned by ear, it would not be aligned for best signal-to-noise ratio.

By using this noise generator it is easy to obtain the maximum results from your particular receiver. If these maximum results are not good enough for you, it will give you a reliable guide for testing the efficiency of the changes that you make.

50 Mc. W.A.S.

Call	Certificate Number	Additional Countries
VK2WJ	13	4
VK3PG	5	3
VK2VW	9	3
VK4RY	2	2
VK4HR	4	2
VK5LC	1	1
VK6DW	3	1
VK3RR	6	1
VK3HT	7	1
VK2AEZ	10	1
VK3XA	11	1
VK3GM	12	1
VK3ACL	14	1
VK3ZD	16	1
VK2HO	17	1
VK2ABC	8	
VK2WH	15	

DX C.C. LISTING

PHONE

Call	No.	Ctr.	Call	No.	Ctr.
VK4HR	12	176	VK4RT	22	124
VK6RU	2	168	VK4WJ	17	122
VK3BZ	3	168	VK4DO	20	116
VK4FJ	21	164	VK4JP	8	114
VK3EE	10	163	VK5MS	24	109
VK3JD	1	155	VK4CB	28	109
VK4KS	9	152	VK3WM	29	109
VK6KW	4	150	VK3HO	25	103
VK3ATN	26	145	VK2ADT	13	102
VK3LN	11	141	VK2AHA	15	102
VK3AWW	14	140	VK6PJ	19	101
VK3JE	7	139	VK3IG	5	100
VK4WF	16	137	VK3GG	18	100
VK4RW	23	135	VK5LC	27	100
VK6DD	6	126	VK3AUP	30	100

C.W.

Call	No.	Ctr.	Call	No.	Ctr.
VK3BZ	6	214	VK5FH	31	134
VK3FH	15	205	VK4RF	11	125
VK4HR	8	200	VK3HT	37	124
VK3KB	10	200	VK3YD	27	123
VK4FJ	29	191	VK3EK	3	122
VK4EL	9	175	VK3JI	25	118
VK5BY	45	172	VK3PL	38	117
VK2EO	2	170	VK3UM	12	116
VK3CX	26	168	VK2OY	44	115
VK5RX	23	159	VK7LJ	24	114
VK6RU	18	158	VK4DA	7	113
VK3CN	1	151	VK7LZ	17	112
VK2GW	16	151	VK4RC	13	107
VK6SA	28	150	VK9XK	41	107
VK5BO	33	150	VK6KW	40	104
VK4QL	36	146	VK3RJ	42	104
VK4DO	20	144	VK2YC	34	103
VK3XO	43	144	VK3PG	46	102
VK3VW	4	143	VK3APA	14	101
VK2QL	5	142	VK3NC	19	101
VK3XK	30	138	VK2OA	32	101
VK3JE	21	137	VK7RK	22	100
VK3YL	39	135	VK2AEZ	35	100
			VK4RW	47	100

OPEN

Call	No.	Ctr.	Call	No.	Ctr.
VK3BZ	4	224	VK5LC	55	118
VK2ACX	6	223	VK7LZ	23	116
VK4HR	7	214	VK3VQ	46	116
VK4FJ	32	206	VK2ASW	53	116
VK6RU	8	203	VK3JA	43	114
VK3JE	12	198	VK2ADT	14	113
VK2NS	16	195	VK3HO	38	111
VK3HG	3	181	VK3MM	49	111
VK4EL	10	175	VK4RC	21	110
VK6KW	13	171	VK3ZB	34	110
VK2DI	2	170	VK9XK	54	109
VK4DO	15	168	VK2ZC	25	108
VK3KX	1	167	VK3KR	56	107
VK4KS	24	167	VK2YL	11	106
VK9GW	48	153	VK9DB	59	106
VK3AWW	45	150	VK3AWN	36	105
VK4RW	52	145	VK6WT	58	105
VK3LN	29	144	VK2VN	18	104
VK5FL	26	143	VK4UL	27	104
VK4WF	40	141	VK6PJ	44	104
VK3HT	41	141	VK6PW	50	104
VK3MC	5	139	VK2HZ	17	103
VK3OP	19	137	VK7KB	30	103
VK6DX	42	137	VK2TI	37	103
VK6DD	22	136	VK3YS	57	103
VK2ADE	28	133	VK7RK	31	102
VK3JI	33	131	VK4TY	35	102
VK2AHA	9	128	VK5HI	51	101
VK2AHM	20	125	VK2TG	39	100
VK3PG	47	124			

TWIN-LEAD "SPRIGS"

TWO ANTENNA TO ONE FEED LINE

BY G. M. BOWEN,* VK5XU

For those v.h.f. enthusiasts who place a 144 Mc. beam above the 50 Mc. one and find that having more than one feed line is either too costly or inconvenient, this article, gleaned from the "Technical Section" of Sylvania News, should be the answer. I particularly specify these two bands because they are not related harmonically. The arrangement will not work on 144 and 288 Mc., for example, because all the acceptor and rejector stubs or "sprigs," as they are referred to in the States, are quarter wave or three-quarter wave lengths.

The unit is constructed from twin lead with a velocity factor of about 0.82 and can be located at the head of the tower or mast. In the usual way the flat ribbon can be changed for open lines as soon as the rotating section is cleared. If two receivers are required, for example to work duplex cross-band, it is possible to develop a similar net-work for inside the shack.

Basically, the filter in each line from the antennae functions on the principle that an electrical quarter wave, when shorted at one end, presents a very high impedance at the open ends to any signal at the resonant frequency. In other words, it acts as a rejector circuit when placed across the transmission line as in Fig. 1.

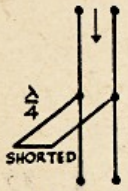


Fig. 1.

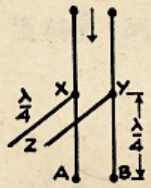


Fig. 2.

If the stub is an open quarter wave, then across X and Y (Fig. 2) there will be a short circuit equivalent to an acceptor or series resonant circuit, but across A and B a high impedance to any resonant frequency signal. Thus the non-resonant incoming signal in Fig. 2, shown by the arrow, will be passed by X and Y since the impedance at X and Y is high. So it reaches AB, which is the junction of the feeder to the shack. The resonant frequency signal looking into the filter from AB will see a rejector circuit because it sees a half wave made up of AX and XZ.

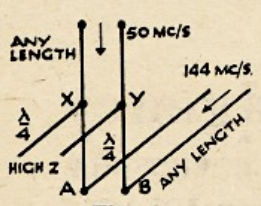


Fig. 3.

* 73 Portrush Road, Toorak Gardens, S.A.

Fig. 2 will therefore develop into Fig. 3.

However, it will be seen that the 144 Mc. antenna and its feed line will possibly short out the 50 Mc. signal, so it will be necessary to insert a filter in the 144 Mc. line to place a high impedance at AB to the 50 Mc. signal. This is illustrated in Fig. 4.

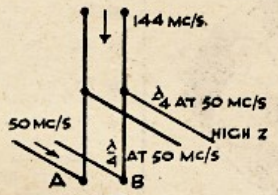


Fig. 4.

Combining these two filters to reject the 144 Mc. signal from one antenna and the 50 Mc. from the other, we arrive at the arrangement shown in Fig. 5.

Two quarter wave sections placed a quarter wave length from the junction of the two leads create high impedances because they are left open at their ends; in simple language, they reject the unwanted signals from the wanted ones!

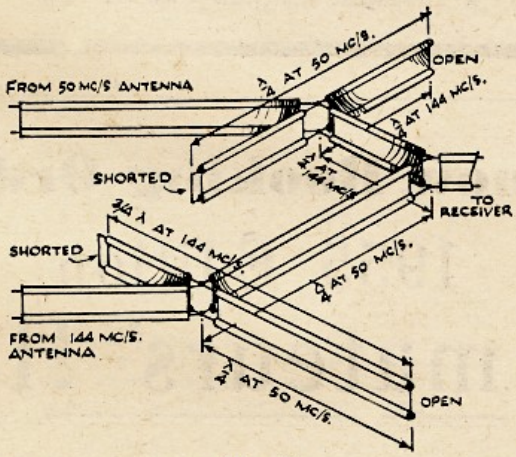


Fig. 5.

Length of Sections:—
Quarter Wave at 50 Mc.—47 inches
" " " 144 " —17-5/8 "
Three-quarter " 144 " —52-7/8 "

AMATEUR BANDS AVAILABLE

*1.84—	1.86 Mc.	†288—	296 M.c
3.5 —	3.8 "	†576—	585 "
7 —	7.15 "	1,215—	1,300 "
14 —	14.35 "	2.300—	2,450 "
21 —	21.45 "	5,650—	5,850 "
26.96—	27.23 "	10,000—	10,500 "
28 —	30 "	†21,000—	22,000 "
50 —	54 "	†30,000 Mc. and	
144 —	148 "	Above.	

* Available for emergency network purposes only. Normal Amateur activities are not permitted in this band.

† Temporary allocations.

If you study Fig. 5 carefully you will quite easily find the high and low impedance points. The two shorted sections can be earthed, since they are at voltage nodes, and the open ends should be supported away from any part of the beam structure. In Fig. 5, for the sake of clarity, the plastic ribbon has been shown as cut away at the junctions of the lines and the stubs. However in constructing the net-work, as much of the plastic as possible should remain in between or the sudden change in dielectric will create bad reflections.

Although originally designed for t.v. reception, it still can be used as a frequency selective net-work into which two transmitters can be fed. A single feeder then goes to a similar network which will divide off each signal to its appropriate antenna.

For successful operation of such an ideal arrangement, very careful matching of feed impedances is necessary. Otherwise if standing waves appear on the feeder, the filter network will become unbalanced. When used for receiving only, the matching into the receiver input impedance is important and the line must see its own impedance.

— . . . —

HINTS AND KINKS

WEATHERPROOFED RIBBON FEEDLINE

300 ohm flat ribbon, of the light grey variety, does not take kindly to exposure to weather and after a few months in wind, rain and sun, cracking and subsequent conductor oxidisation sets in. If, however, you enclose and seal the feedline in p.v.c. flexible sheathing, the outcome is a line comparable with the tubular kind. You can even use the old garden hose—or the newer plastic kind. Sealing, particularly at the elevated end of the feedline can be done effectively by applying first a coating of Pliobond adhesive with a final covering of Bostik or similar adhesive.—VK2NO.

24 VOLT RELAYS ON 12 VOLTS

Most of the relays found in ex-war gear are designed for 24 volt operation, and if used on 12 volts, do not have enough pull. In the case of two bobbin 24 volt relays, however, a simple modification will render them suitable for the lower voltage. Re-connect the two windings so that instead of series connection they are in parallel. Make sure that the polarity is correct, i.e. that the inductances aid instead of "bucking."—VK2NO.

MAX HOWDEN, VK3BQ

BY VK3VZ

ANYONE who tunes the 144 Mc. band knows Max Howden, VK3BQ, because he is one of our most active men on this band, and if you live within a mile and a half, as I do, will testify to the efficiency of the 45 watt signal radiated from that station.

To see how he does it, I paid him a visit and now pass on my findings so that we all might learn first what his ideas are on v.h.f. generally.

Max, as we all know, is one of our pioneering Amateurs who first came into the limelight in May, 1923, when he won the Trans-Pacific test by logging 22 stations. The band used was 150-250 metres, for in those days all wavelengths below about 250 metres were allotted to Amateurs. The receiver used to win the contest is now in the Victorian Division rooms.

In the following year, with the granting of transmitting licenses, contact was established on c.w. with W6AHP on **2nd November, 1924**, and then G2OD in England on **13th November, 1924**, also on c.w. The wavelength used was 87 metres, which was v.h.f. in those days. QRM was bad in the United States because about 22,000 Amateurs were licensed at that time, and to avoid this, the VKs pushed a little higher in frequency.

Since those early days, Max has retained his interest and has always been found helping to pioneer the higher frequencies. In 1938 I can remember him on the 28 Mc. band, which, with 56-60 Mc., was quite high frequency in those days.

Today his interest is mainly 144 Mc. and being a keen experimenter, he favours the breadboard type of construction.

The transmitter is fairly conventional, consisting of a 6AG7 tritet, with output on 24 Mc., 5763 doubler, 2E26 tripler, and 829B final, with an input of about 45 watts. This feeds a beam aerial which we suspect is the main reason for that terrific signal.

This beam is virtually three 4 over 4 beams, side by side and fed in phase, making 24 elements in all.

Two horizontal longerons, one above the other, are attached to the mast at their centres, and the booms of the four element sections are attached at right angles to this.

Bracing is carried out with 100 lb. nylon fishing line, and Max is most enthusiastic about the way it does the job. Nylon line possesses quite a deal of elasticity and allows the elements to give slightly in heavy gusts of wind. If you are keen on fishing, you will know how very strong this nylon line is.

Speaking of the beam generally, Max does not think the addition of the third 4 over 4 was worth the effort involved and considers that for all practical purposes the pair of 4 over 4's he had up previously was nearly as good from a result point of view and a lot less complicated to phase and match properly.

His only hint was to make sure that the pole passing up between the pairs of four element beams is a wooden one, as the losses are high with the ends of the elements near a metal pole.

Rotation of the beam is done by means of a shaft down the centre of the tower, driven by a right angle drive from inside the shack. An old motor car steering wheel does the turning.

The beam is extremely sharp and a variation of 10 degrees will cause a noticeable drop in signal strength.

The receiving side is handled by an AR88 receiver fed from a crystal locked converter, and it was this converter which caught my eye.

The signal to noise ratio was extremely good and the stations being received stood out with a perfectly quiet background. This was most noticeable on the country stations.

The converter uses a 6J6 neutralised 1st r.f. closely coupled to a 6AK5 2nd r.f., operating with only 8 volts on the screen and 100 volts on the plate. One half of a 6J6 is used as the mixer, again with only 8 volts on the plate, whilst coupling to the AR88 receiver is taken off the cathode. The plate of the other triode is left floating and oscillator voltage is injected through the grid of this second section.

An 11 Mc. crystal in a regenerative circuit, using a 6SH7, feeds a 6AK5 harmonic amplifier which in turn feeds into the 6J6 grid mentioned previously. The output of the 6SH7 is at 44 Mc., and the 6AK5 at 132 Mc., which beats with the incoming signals to give output in the range 12-16 Mc.

Max attributes the low noise of the converter to the triode 1st r.f., the use of low screen volts on the 6AK5 2nd r.f. and also the 6J6 mixer plate. In any event, he has found this converter superior to the cascode front end.

He passes this suggestion on to all who strive to build the ultimate in converters for v.h.f. bands. "If you are not satisfied with the converter you have, don't pull it down, build another one and then you will have the old one as a standard of comparison. If the new one is better—then pull the old one down, but not before."

Sound advice from an "Old Timer" who is still in the forefront of Amateur Radio today, and a leader in the latest techniques.

To cap our visit, a break-through occurred to Tasmania and VK7PF and VK7LZ were worked. This rounded off a very interesting evening, from which we made two interesting observations. Amateurs, no matter what age, retain a youthful enthusiasm which keeps them young and alert, and also that Max's years of experience are standing him in very good stead when it comes to modern v.h.f. work.

NATIONAL FIELD DAY

NOW ON SUNDAY, 3rd APRIL

This Contest, which was previously postponed owing to the Flood Emergency in New South Wales, will now be held on **Sunday, 3rd April, 1955.**

The rules were published in February, 1955, "Amateur Radio." Rule 1 is now amended to read **"Sunday, 3rd April, 1955,"** and Rule 9 (return of logs) to read "Saturday, 30th April, 1955."

Remember, Contest is on **Sunday, 3rd April**, and logs are to be returned by Saturday, 30th April.

Amateurs agree that the A.W.V. Radiotron Beam Power type 2E26 is ideally suited to their VHF rigs. Designed specifically for such applications, this sturdily built unit will give better performance, longer life and added reliability to your transmitter.

Consider these features . . .

(1) **HIGH POWER:** A single A.W.V. Radiotron-2E26 operated at its ICAS ratings will take an input of 33 watts at 500 plate volts in class C telegraphy at frequencies as high as 150 Mc., and 40 watts at 600 volts at 54 Mc. It will take an input of 22.5 watts at 415 plate volts in class C telephony at frequencies as high as 150 Mc., and 27watts at 500 volts at 54 Mc.

(2) **LOW DRIVE:** At 144 Mc., about 2 watts of RF must be delivered to the grid circuit. A 6V6-GT is a satisfactory driver tube.

(3) **ECONOMY:** Small in size with high power sensitivity, and high efficiency the A.W.V. Radiotron 2E26 makes an excellent final amplifier for a compact, inexpensive VHF transmitter operated from a simple low-voltage power supply.

(4) **CONSTRUCTION:** The 2E26 has short internal leads, a rugged button stem fitted to an octal base having a low-loss micanol insert and metal sleeve, excellent internal shielding, and double-ended construction for isolation of grid and plate circuits.

(5) **APPLICATIONS:** The 2E26 is an excellent medium-power final amplifier for 6 and 2 metres. As a doubler, it will supply more than adequate power to drive an 829-B or 815. It will deliver 15 watts of 2-metre RF as a TPTG oscillator.

Listed below are rating and characteristics of the 2E26 and other types from the comprehensive A.W.V. Radiotron range, which are ideal for amateur use.

Type	Heater Volts	Dimensions in inches		Transconductance	Max. Plate Ratings	
		Length	Diam.	Micromhos	DC Volts	Dissipation (W.)
2E26	6.3	3 21/32	1 5/16	3500	700*	18.5*
813	10.0	7 ½	2 9/16	3750	2250†	125. †
807	6.3	5 ¾	2 1/16	6000	750†	30. †
				Max. Plate or Anode Ratings		
				Peak Inv. Volts	Amp. Av.	
866A	2.5	6 9/16	2 7/16	10,000	0.25	
				Operating Volts	Operating Current DC MA	
					Min.	Max.
OC3	—	4 1/8	1 9/16	108	5	40
OD3	—	4 1/8	1 9/16	153	5	40

*For Intermittent Mobile Service.
†For Intermittent and Commercial Amateur Service.

DENMARK PAYS A TRIBUTE TO VKIEG

The following letter, which is self explanatory, has been received from Borge Peterson, OZ2NU, and we publish the letter, together with the enclosure as received.

Box 335, Aalborg,
Denmark.
24/11/54.

Editor "A.R.,"

Dear Sir and Friend,

I am sure it is not often that you receive material for your magazine "Amateur Radio" from Denmark, but I am sure that you will allow the enclosed article to be published in your magazine. We are proud of the fact that the Australian Government has found the Danish ship "Kista Dan" useable for the expedition to Robertson Land and Mawson.

Your Amateur friend, who is writing and sending this, is happy to have been working with the building of the ship and to have had the opportunity a few days ago to hear a lecture on the voyage to Robertson Land by Captain H. Petersen, the chief on "Kista Dan," during its stay here on the yard where it was prepared for its next trip to the Antarctic.

With my best compliments and 73,

BORGE PETERSON, OZ2NU,
Shipbuilding Engineer, and
Traffic Manager E.D.R.

ACKNOWLEDGMENT TO BILL STORER, VK1EG

It is always appreciated by DX hunters when someone in the ranks of Radio Amateurs makes it possible to "get" a new country. We know of several cases during the last few years as announced in the DX columns of the different Amateur magazines. One of the most well-known through 1954 has been Bill Storer, VK1EG, on Robertson Land in the Antarctic. We remember also the Chilean Expedition to Easter Island earlier in the year (1954).

It is of interest that both the ships which have been used by these two expeditions were built on the shipyard of Aalborg in Northern Jutland.

The "Kista Dan" has for a few days been back here on the yard for a necessary "make up" before going down again to the Antarctic. The writer was happy to be present during a lecture given by Captain H. Petersen, chief of the "Kista Dan," who told about the voyage to Mawson and about the people making the expedition.

As a Radio Amateur and as one of the builders of the two ships mentioned, the author takes the opportunity to greet the men who have been pioneers and furthermore, have been excellent ambassadors for the Radio movement.

The expression of gratitude isn't coming from the writer alone, but from innumerable places around the world, from DX operators favoured with contacts with Bill in the Antarctic.

In the spirit of this, the Traffic Department of E.D.R.—the Experimenting Radio Amateurs—has awarded a certific of acknowledgment to our Amateur friend Bill Storer, VK1EG, and our thoughts are following it on its way down South with the "Kista Dan" struggling its way through the Antarctic Ocean—an effort worth a certificate in itself.

Thank you Bill, a thank you from our hearts.

POLICE NOTICE

One thousand microfarads reward is offered for the capture of Hop Along Capacity who escaped from Pushpull Primary Cells yesterday armed with a carbon rod. He is wanted for the inductance of an 18 year-old coil. Pushpull E.M.F. have been searching the magnetic field for ampere hours. It must be noted that when cornered he will offer great resistance which must be neutralised. Ohm town dielectric agents please pick up and relay.

AUSTRALIAN V.H.F. RECORDS

TWO-WAY WORK

Band Mc.	Stations	Date	Miles	World Rec'd
50	VK5KL-W7ACS/KH6	26/8/47	5355	10500
	VK3IM-VR2CB	30/12/53	2405	
	VK7BQ/LZ-VK9DB		2211	
144	VK3GM/3-VK7LZ/PF	9/3/52	317	1400
288	VK3AFJ/3-VK3AAF/3	21/3/54	63.8	—
576	VK3ANW-VK3AKE	11/12/49	81.6	—
1215				100
2300	VK3ANW-VK3XA	18/2/50	9.1	150
5650				—
10000				109
21000				800 ft.
30000				—

It is in the interests of all v.h.f. enthusiasts to notify F.E. through Divisions, if you can better the above figures. Please give exact details of both stations' locations for checking, when submitting your records.

CHANGE OF ADDRESS

W.I.A. members are requested to promptly notify any change of address to their Divisional Secretary, not direct to "Amateur Radio."

SHORT WAVE LISTENERS' SECTION*

VICTORIAN MONTHLY MEETING

The meeting was held in the rooms at 191 Queen Street at 2000 hours on 22nd February, 1955. After the normal business, Gerrard Lane gave a lecture on 2 mx equipment. A new member for the month was Don McDonald, of Balwyn. Good DX Don. Meeting closed at 2215 hours.

A.B.C. Visit: On Wednesday, 23rd February, the members of the VK3 Division visited the Melbourne Studios of the Australian Broadcasting Commission. Some 15 members turned up including Arthur 3AHD. All had a very interesting time and we thank our hosts of the A.B.C. for conducting the very informative tour.

NEW REPORTERS

I would like to say welcome to Ted Bayley, of Ballarat. Ted is a P.M.G. linesman and has been an s.w.l. for some 15-20 years. He uses a 9-tube Halicrafters Sky Champion and a W8JK beam. He has received QSLs from 122 countries and has some 2,200 QSLs.

From Rod de Balfast, of Launceston, we received a very healthy list of reports. Rod uses a 2-tube t.r.f. receiver, using a 6U7 and 6L5 with a half wave end fed Zepp on 40 mx.

To Rod and Ted may you have a good season of DX.

CALLS HEARD ON THE BANDS

144 Mc.: 3ATN, 3YS, 3LN, 3ZAW, 3ZAF, 3ALW, 3UE, 3ZAA.

3.5 Mc.: W6, W0, W7.

7 Mc.: ZL, ZM6, W6s, W5, KC6, KH, HP, HP3, CO2, CO8, and HR4.

14 Mc.: W3, KH6, W8, ZL3, W9, W2, KH2, W0, PY2, W7, CE3, CN8, 3V8, 4X4, OD5, F8, F9, DL3, YV5, VK1, VK9, ZS1, CO2, CS3—these from Frank Nowland and Geoff Morris. From Rod, of VK7 land, CN8MN, W6YY, W6BUD, DU1CV, KC6CG, KH6ST, KA2LK. From Michael Ide CT1, EA4, HK3, KA3, KA2, KA7, A0, KC6, US2, W5, VE7, OE1, KH6, KG6, KJ6, W6, W7, YV, 4S7, W3, HP3FL.

21 Mc.: From Frank and Geoff: W6AL, W6CBE, VK9DB, VR2CG, W6ONT, W6EY, W4VVU, AI4AA.

SOUTH AUSTRALIAN S.W.L. GROUP

Jim Paris, of Prospect, S.A., has forwarded news of the VK5 Division forming an S.w.l. Group.

On their first meeting, seven members turned up and they received enquiries from another six people.

To the VK5 S.w.l. Group we here in VK3 wish you all the best and a highly successful group.

S.W.L. REPORT FORMS

The Victorian Division of the W.I.A. have issued printed S.w.l. Report Forms which are available from the rooms at 191 Queen Street, Melbourne, for a small fee of 2/6 per 50 sheets.

SEND CORRECT AND DETAILED REPORTS

We have received from overseas Amateur Stations details which show that Australian s.w.l's. are sending false and uninformative reports and expect 100 per cent. QSLs from the stations sent to. Your reports must be accurate and to the point and must contain the detail which is required by the transmitting station.

Reports should contain information on the frequency upon which the station is working, date, time (G.M.T. and your local time), signal strength, readability, fading, interference, weather conditions, programme heard, your receiver details (including number of valves), your aerial (direction and height of same), your name and address.

To members of the W.I.A. you may send your reports via the QSL Bureau for a small fee, and they will go much cheaper than by ordinary mail. But remember, if you want the stations to return your QSL card, then include a International Reply Coupon with each report.

Just place the report and reply coupon in an envelope and place the call sign of the station on the envelope and forward to the Outward QSL Manager of your Division.

S.W.L. REPORTS

Many short wave listeners have from time to time reported reception of a station and because that station does not normally issue verification of reception in the usual form, their report is unanswered.

A form called "Prepared QSL" was used by many s.w.l's. during and immediately after the last war. However, their use still stands good where many Amateur Stations who have no cards, or whose stock is exhausted, will favour you with a reply.

But a report should consist of more than is customarily found in reports, such as: Ur sigs hrd 0200 hrs G.M.T. on 20 metre phone. Wkg W0OOO S7 QSA5. Please QSL.

That kind of report is of no help to anyone. Stations prefer to know just how well their signals are received. Many overseas short wave broadcasting stations usually are well informed by medium of expert technical advice, how well their signals will reach a given location. But even the best of predictions can go astray and a report or reports from listeners go a long way in compiling accurate details of the station's range.

For any Commercial Broadcast or Short Wave Broadcast Stations, the minimum report should be 30 minutes. Containing sufficient material for them to identify their own programme, announcements, musical items, etc., should be identified where possible and an accurate time given for beginning and commencement of each item. For best results use Greenwich Mean Time, 10 hours behind Australian Eastern Time. Often a careful check can be made with a sheet of graph paper which can be divided into two parts. (1) Signal strength and readability. Each square could represent 1 minute and while you are filling in details of the programme in your log book, each minute mark a point on the graph sheet. When your listening time is over, join the points and you will then have a pretty good idea how the reception was maintained over the listening period. Signal strength could be compared with a signal strength meter or by a scale divised yourself following the degrees listed on the bottom of the Official Report Forms available from the Group.

You may then forward your report on appropriate form, together with your graph, and forward same to the station. Station addresses will be featured from time to time in this magazine.

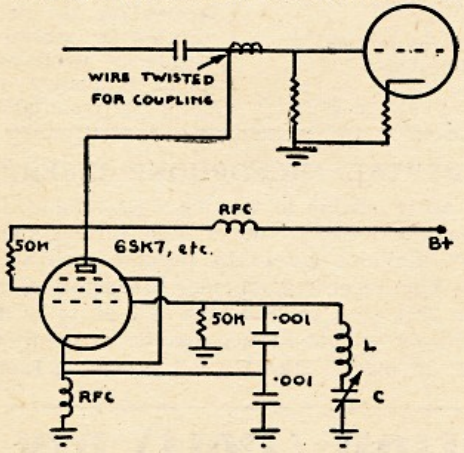
For a reply, enclose stamp to cover return postage in Australia only. Outside Australia, but inside British Empire, Imperial Reply Coupon. Outside British Empire, including the U.S.A., use an International Reply Coupon.

Don't forget, a good report usually receives an early reply. Good luck in your reporting.

Suggested outline for prepared QSL—
To: Own Name and Address.
I/We acknowledge receipt of your report dated .....reporting reception of station..... operating on..... Mc. Metres on..... (date).....(time, G.M.T.). Station.....was operating using a power output of .....watts into.....antenna, radiating in..... direction to .....
This certifies that your report has been checked against Station Log and found to be correct.
I/We hereby confirm reception of Station.....
Signed by Station Operators.

S.W.L. HINKS AND KINKS SECTION

This month we publish a circuit of a Clapp Oscillator submitted by Bruce Ackland. Bruce suggests that this oscillator be used either as the main oscillator in your receiver or else as the second



oscillator in a dual conversion job, thus saving the cost of an expensive crystal. The Clapp oscillator is noted for its excellent stability and the fact that it is not very sensitive to changes in valve capacitance, during the warm up period. Naturally, as with any oscillator circuit, only the best of components should be used and the most rigid construction employed if the best results are to be obtained.

BROADCAST BAND

Radio Erreann, Ireland. Station at Athlene uses 100 kw. on 566 Kc.; Station at Dublin, 5 kw. on 1250 Kc.; Station at Cork, 5 kw. on 1250 Kc.

Radio Erreann states that they have no short wave outlets and that the transmitters at both Cork and Dublin are new transmitters and are now on regular broadcasts.

A 100 kw. transmitter is to be installed in Athlene before the end of the year in replacement of the existing one which has been in use since 1933. The Athlene transmitter is capable of covering all parts of the country reasonably well, but the service area of Dublin and Cork transmitters are limited.

Regular broadcast hours are as follows: 0800 to 0915, 1300 to 1430, and 1700 to 2330 G.M.T. On Sundays the hours are from 1230 to 2330 G.M.T.

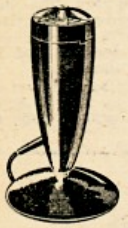
* Compiled by John Wilson, 37 Rayment Street, Alphington, Vic.

"ACOS" CRYSTAL MICROPHONES and MICROPHONE INSERTS

A Complete Range For Every Purpose

DESK OR HAND MICROPHONE

MIC 36



Housed in attractive plastic case, this Microphone is ideal for home recording and public address, etc. Response unexcelled for its size and price. The performance is not affected by vibration, shock or low frequency wind noise. Omni-directional frequency response substantially flat from 30 to 7000 c.p.s. Recommended load resistance not less than 1 megohm dependent on low frequency response. Can be supplied complete with switch and floor stand adaptor as required at a small extra cost.

£6/18/6

HIGH QUALITY MICROPHONE

MIC 16

Designed to meet even the most exacting requirements, this Microphone incorporates the world famous floating crystal sound cell construction. Its special characteristics are that its fine performance is not affected by vibration or shock. The fidelity is not impaired by low frequency wind noise.

SPECIFICATION

Recommended load resistance—not less than 1 megohm.
Output level —65 db ref. 1 volt/dyne/cm².
Frequency response—substantially flat from 30 c.p.s. to 10,000 c.p.s.
Directivity—non-directional.
Size—2⅛" spherical diameter.
Connector—Standard international 3-pin.

£24/19/6

GENERAL PURPOSE MICROPHONE

MIC 35

The MIC 35, undoubtedly the best value ever offered, is ideal for amateur transmitters, public address, etc. Housed in an attractive die-cast case, it features a high sensitivity and substantially flat characteristics. Provided with a built-in shunt resistance of 2 megohms, it will, when connected to the grid of the input valve, give a substantially flat response from 50 to 5000 c.p.s.

£2/15/-

SPECIFICATION

Output level: —55 db ref. 1 volt/dyne/cm².
Cable—approx. 4 ft. of co-axial supplied.
Weight—6 ozs. unpacked, 7 ozs. packed.
Dimensions—microphone only 2¼" x 2⅛" x ⅞"

TABLE AND STAND MICROPHONE

MIC 22

This omni-directional Microphone is robust in construction, with a pleasing appearance. Vibration, shock or low frequency wind noise will not affect the performance. The low frequency cut-off is dependent on the load resistance. The cut-off is given by the quotation, $F = 80 \div R$, where F = c.p.s., R = megohms. An adaptor (floor mounting) is available at low extra cost.

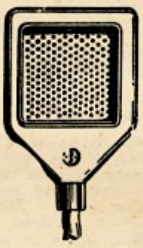
SPECIFICATION

Output level = —50 db ref. 1 volt/dyne/cm².
Output impedance—equivalent to approximately 0.002 uF. (0.8 megohm at 100 cycles).
Frequency response—substantially flat from 40 to 6000 c.p.s.
Recommended load resistance—not less than 1 megohm, dependent on low frequency response.

£9/18/6

LAPEL MICROPHONE

MIC 28



Designed to give freedom of movement, this Microphone is small and non-directional. Housed in a soft moulded rubber case, which gives protection against shock, it is provided with a pin at the rear of the case for pinning to the lapel.

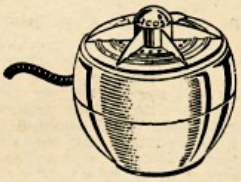
SPECIFICATION

Output level—approx. —55 db ref. 1 volt/dyne/cm².
Recommended load resistance—5 megohms.
Frequency response—level throughout the whole of the audible spectrum.
Capacity—0.0015 uF. at 1000 c.p.s.
Impedance—100,000 ohms at 1000 c.p.s.
Cord—6 ft. shielded cable.
Size—1-9/16" wide x 2¼" long x ⅝" thick.

£5/19/6

HAND OR DESK MICROPHONE

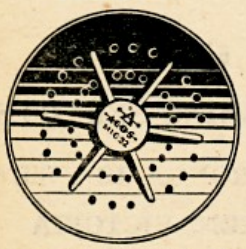
MIC 33



This Microphone has been designed for the high quality public address and home recording field. High sensitivity and flat characteristics are obtained by a specially designed acoustic filter. Housed in an attractive plastic case with an unexcelled response for its size and price. Unaffected by vibration, shock or low frequency wind noise. Omni-directional frequency response substantially flat from 30 to 7000 c.p.s.

£6/18/6

MICROPHONE INSERTS



(MIC 32 illustrated)

CRYSTAL MICROPHONE INSERTS

These inserts are available in varying sizes ranging from as small as 15/16" square to 1-13/16" round, with various thicknesses from 7/32" to 9/16". Suitable for every purpose such as hearing aids, public address, tape recording, amateur broadcasting, etc., they have responses from 2250 c.p.s. to 3500 c.p.s. at 5 db to 30 db. Insert can be supplied with or without 10 meg. resistor as required.

MIC 32 insert, **£2/15/6**; all others, **£1/19/6.**

MICROPHONE INSERTS

(MIC 23 illustrated)

EXCLUSIVE AGENTS: **AMPLION (A'SIA) PTY. LTD.** **SYDNEY, AUSTRALIA**

DX ACTIVITY BY VK3AHH†

PROPAGATION REPORT

3.5 Mc.: Times of openings and quality of overseas conditions were relatively reliable throughout the month. **Europe** was represented between 1830 and 2000z and **North America** around 0800-1300z. The **Pacific Islands** and the **Far East** broke through between 0800 and 1200z.

7 Mc.: Here conditions have also been fair to good with **European** and **North African** break-throughs over the long path 0700-0930z and along the short route 1900-2200z. Openings along both, long and short route, can also be reported for **North America** (2000-2300z and 0700-1400z). Occasionally, **South American** conditions could be noticed around 0800-1000z. 0800-1400z was the period for the **Pacific Islands** and **South East Asia.**

14 Mc.: This band provided reasonable conditions when open. Contacts with all continents have been reported. Times for **Europe** were 0400-1000z and 1100-1400z. **North American** contacts were possible around 2100-2400z and 0300-0900z with some erratic break-throughs at other times. Openings to **Africa** existed during the periods 0800-1000z, 1200-1500z, and 2200-2400z. Conditions to **South America** were reported as 0300-1000z.

21 Mc.: More or less regular openings to **North America** have been reported (2300-0300z). Three **European** break-throughs have been observed in Victoria (on the 6th, 9th and 20th February).

27-28 Mc.: According to a report, this band had been open to California.

NEWS AND NOTES

While continuous, heavy rain hit New South Wales, while abnormal weather conditions caused extensive floods, the **Radio Amateur** was in the mind of all who were concerned with this catastrophy. Where communications were cut, where food and other essentials were needed by country towns and areas, he offered his helping hand, his expert-like performance, his ability and training. Very efficiently organised by the N.S.W. Division, smooth and orderly traffic was maintained at all times. Once again, this proved to authorities and public that, in emergencies, Amateurs—proficient in operation and technique as well—secure most reliable communication. **Thus let us join in with this word of praise to the VK2 Amateurs for a job well done!**

With monotonous regularity, day follows day, month follows month, year follows year, and **cycle follows cycle!** Yes, the good old Sun has spots again! Jokes aside, it may now be stated that the number of sunspots is increasing steadily. As is generally known, the exact time of the actual minimum value cannot be recognised accurately until a year or so after, which was one reason for your scribe to hesitate with such announcements. However, it now seems to be certain that the slope is positive. Thus we have entered a new cycle and can look forward to a gradual improvement of DX conditions on the 27-28 Mc. and 21 Mc. bands. Here we like to offer a word of appreciation to those Amateurs who, during the tedious minimum period reported on 27-28 Mc. conditions, namely **VKs 2AFE, 2ALJ, 3YS, 3YT, 4EL, 4TN, 4XJ, 5HI, 9GW and s.w.l. Jim Hunt.**

The 1955 team on Macquarie Island, i.e. **VKs 1HH, 1DC, and 1ZM,** have now commenced operation while, at time of writing, the expedition ship Kista Dan is on her way back from Antarctica and is now expected to arrive in Melbourne in the last week of March or beginning of April. Welcome home to **VK1DY, VK1PG** and **VK1EG!**

VQ6LQ, now on leave in G land, will return in April. **HB1MX/HE** is frequently active from **Liechtenstein** on three bands, namely 7, 14, and 21 Mc.

The list of active VP8 stations is as follows: Antarctica—VP8BP, VP8AO; South Shetlands: VP8BX, VP8BY; South Orkneys: VP8AQ.

Guadeloupe is represented with **FG7XB** on 7 Mc. c.w.

KC6ZB will leave Yap Island early in April for vacations.

The W.I.A. Olympic Games Committee (3TE and 3AHH) has co-opted Max 3ZS. Considerable preparatory work has been done. Readers will be kept informed through this and other channels.

QTHs OF INTEREST

FG7XB: Antoine Noel, 44 Chemin des Petites, Pointe Pitre, Guadeloupe, F.W.1.
HZ1AB: 7244th Air Base Squadron, M.A.R.S., A.P.O. 616C, C/o. P.M. New York, N.Y.
EL2L: Sam Butler, Monrovia, Liberia.
VQ8AR: Floreal, Mauritius.

ACTIVITIES

3.5 Mc.: Frank **2QL** heads the list with W9*, W0* and SM5HD, DL, G, LZ1KSP, YU3AB, KP4CC, DU7SV, KR6LJ, KH6VU. Neil **3HG** follows with W1*, W3*, W0*. Eric **BERS195** heard DU7SV, KP4CC, W6. **3AHH**'s log shows numerous Ws* and G6YQ, KR6LJ, SM5HD, LA7CE, F8DW.

7 Mc.: **2QL** reports OQ5RU* and CR6AI, 4X4BT, EO0DB. The next in line is Laurie **2AMB** with G6ZO*, G3DCU*, G5RI*, G4CP*, OH6RY*, VE*, KP4JE*, KP4CC*, CO2BM*, SM5AQW*, SM5WM*, JZ0DN*, LU1FBQ* and EA4CS, EA4BV, CR9AH, VS6AE, CO8FH, VS1GO, DU9JG, SM5UQ. Fred **3YS** heard KC6AJ and Noel **3ZO** adds CR9AF*, JAs*, KL7* CO8FH*, KR6OS*, JZ0DN*. Eric **BERS195** follows with AD4EAR, CO7HS, CO8AQ, CR9AH, EA9DF, FA8CR, FA8RJ, FA8DA, FA8BG, FA9RW, F9QV/FC, DU9JO, HB1ET/MM, HB9HL/MM, HZ1HZ, JAs, OQ5RU, JZ0DN (1300z), VQ3FN, VQ4RF, ZB1TD, ZC4IP, ZE3JO, 4X4BD, 4X4GD, 4X4GW, 3V8AB. **Dave Jenkin** heard KL7, DL3VR.

14 Mc. C.w.: **2QL:** IT1TAI, CR5SP, EA9DF. Noel **2AHH:** VS2DW*, KZ5GH*, ZB1CH*, VS9XZ*, DU6CO*. **2AMB:** GM*, G*, VS6*, VQ4AQ*, OE5JK*, OZ7SN*, CT3AB*, KR6*, JZ0AG* and KC6CG. Harry **3GU:** DL*. **3HG:** OH*. **3JA:** ZC4RX*, ZC4JA*, G*, GI*, VQ4AQ*, MP4BBE*, DL*, OH*, CR9AI*, ZC4CK*, PA0*, VQ8AY*, VU*, SM*, JA*, CE4AD*, PJ2AN*, YV5BJ*, I*, ON*. Bill **3TX:** 4X4**, Lance **3ZA:** SU1CN*, PY5ETG*, VQ6LQ*, DU1VQ*, CP3CA*, DU7SV*, CT1JS*, and 4S7NX, PY8MO, VK1EG, VP8AZ, ZS2KX, EA8AY, EA3BT, KP4CC, VQ4RF, FB8XX, GD3IBQ. **3ZO:** HB9*, YU*, EI9Y*, OZ6QJ*, CN8FQ*, CN8EB*, DJ1BZ*. Alan **4SS:** ZD2DCP*, ST2AR*, ZS1MS*, FW8AB*, YS1O*, YU*, HK4DP*, HL2BA*, EI5C*, JZ0AG*, EA9DF*, EA3IV*, DL*, LU2MT*, LU7EY*, LU1SE*, LU6SA*, ON*, CN8IN*, CN8HM*, CN8FQ*, ET3LF*, CT3AB*, CT1DJ*, GM*, GI*, KP4YT*, KP4DW*, FA8CR*, FA8IH*, CE3RE*, CE4AD*, KC6AJ*, OE13USA*, OE1WB*, LA7X*, OZ1XX*, I*, CO5FL*, CO2WD*, CO2OE*, VS6DC*, VS6DB*, VS6CR*, VS1BJ*, DU1CV*, DU7SA*, Gs*, SM*. John **5HI:** EA9DF*, ET2S*, HB9*. Ray **5RK:** KA/JA*, FI8BA*. Austin **5WO:** OD5AI*, DJ1BZ*, I1AIV*, Ws*. Brian **6ZI:** OH*, SM*. **BERS195:** CE1BD, CE3RE, DU1CV, DU1VQ, CN8IN, FI8AP, FI8BA, FO8AM, KC6, KP4AZ, KW6BB, OQ5GU (2215z), PY1ADA, VK1PG (0845z), VS1BJ, VS6CG, VS6CT, VU2CP, YV5AE, YV5AK. **Dave Jenkin:** VS6DC, 4S7LB. S2DW, OH, G, JA, GW, GM, CE3RE, VQ4AQ, DL, GI4RY, ON, 4S7KH, CN8EB, LU6DJX, KP4BU, CO8DL, VQ8CB, VE, DU6SV, SM, 4S7NB, CE3DZ, CT3AB, FI8BA, KR6, VU2MD, F7, CN8FQ, ZS6ADF, HB9, LU1CAG, AP5TM, OH, VS6CW, CN8GA.

14 Mc. Phone: **2AHH:** CE3QT*, YN1LB*, ZS2BC*, YK1AA*, MP4KAC*, VQ8AL*, ZS5JM*, VP7NG*, G*, VP2KM*, 5A3TZ*, 4S7SS*, HB9*, YV5EO*, DU7SV*, 3V8BP*, 5A4TR*, CX5AF*. Stan **3TE:** CT1HL*, CT1PK*, DL*, EA3JE*, EA7EM*, ET2MZ*, F9*, G*, HB9*, HC1KC*, I*, JA*, KA*, KA0IJ*, KM6*, KP6AK*, KV4BB*, LA5YE*, OE2DP*, OE13USA*, OD5AB*, OH*, OZ1PS*, OZ3TH*, PA0NU*, PI1J*, SM*, VE*, VS2DB*, VS2EB*, VU2RC*, XZ2OM*, YV5CE*, YV5EU*, 3V8BP*, 4S7*, 4X4BA*, 4X4GB*. Harold **3AHC:** HP3FL*, DL*, CN8*, VR2*, TI2*, KP6AK*, I*, EA3*, KP4*, LU7*, CS3*, CX*, OH*, VU2*, MP4*, VS7*, KV4*, Gs*, HC*, KR6*, VS2*. **5HI:** CO3JL*, CO1AF*, 5A4TR*, 5A4TX*, VE*, EA3JE*, CT1PK*, DL*, YU*, HC1KC*, EA9AZ*, C3WV*, VR2CG*. Austin **5WO:** GM*, G*, DU*, HZ1AB*, KA*, VU2*, JA*, KR6*, 4S7*, VS2*, ON4*, YU1*, KW6*, KG4*, VQ4*, HC1FG*, VY5*, DL*, OH5*. Pat **7PM:** XE2KW*, EA7DK*, VS1EB*, KR6*, ZS1SW*, CT1PK*, XZ2OM*, FA8AK*, G*, CN8MM*. **BERS195:** KP4AZ, VS2CP. **Jim Hunt:** GW, GM, GC6FQ, IS1BV, SM, HB9, OH, DL, 4X4AS, CT1CF, OH, OZ7BG, YI2AM, OZ3TH, SV0WO, OZ9GC, YU, PA0NU, PI1J, OE2DB, HZ1AB, MP4KAC, OD5AB, 4X4DK, G, VS2EB, FI8AO, 4S7YL, VU2RC, VU2FX, XZ2OM, VS2UW, VK1PG, ET2US, ZS6BW, ZS1SW, VQ4FK, VQ4AQ, ET2MZ, CX5AF, PY2AHS, CO2BL, KZ5DJ, KZ5PP, LU8OF, KP6AK. **Dave Jenkin:** OA2A, PY5DP, CN8MS, VR2BZ, VR2AS, G, YV5BB, ZD4EFC, CT1CL, OZ6BA, CT1CK, VS2EB, VS6BE, KR6.

21 Mc.: Austin **5WO** QSOed on phone, HC1FS* and VS1FE*. **Jim Hunt** heard DL1VX, G3HCU, G3GKF, G3DQY, G3BJJ, G3TR, G3ABH, G5DF, G8CD, G8SY, 4X4AS, ZB1DK, CT1FX, F8LT, OE1WH, I1AYI, OD5AJ, HB9, YU, AI3AO, VU2ET, VU2CW, VU2CY, VS1FE, VS6BE, VR2CG, JA, KA, KG6, KH6, DU7SV, HC1FS, HC1PL, Ws.

27-28 Mc.: **Jim Hunt** heard one W6.

Rare QSLs were received by—**2AHH:** ZS7C, FB8BR, VP4LW, VP7NG, CX5AF, FA3JY, VP2KM. **2AMB:** ZC4IP (7 Mc.). **3KB:** ZD6RD. **5WO:** LA5YE, FA3ZH, CN8IB, FI8BA, HC1FG. **BERS195:** DU7SV (3.5 Mc.), EA9DF, HB1MX/HE, IT1TAI, MP4KAC, OA4BN, VQ3CF, VQ4RF, 5A2FA, 9S4BE.

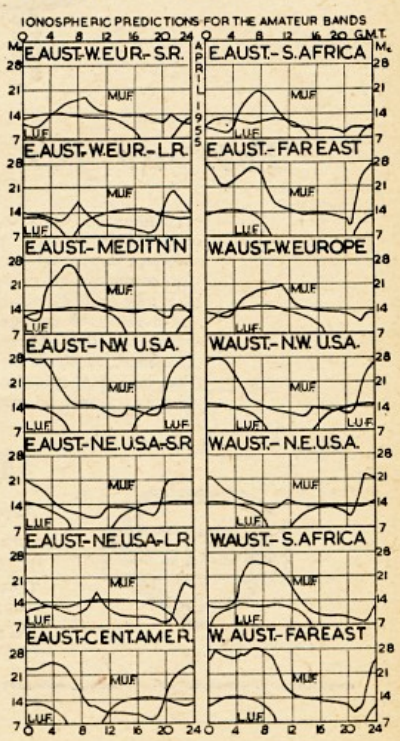
This month we say thank you to: The Southern California DX Club and their Bulletin, and VKs 2QL, 2AHH, 2AMB, 3GU, 3HG, 3JA, 3KB, 3TE, 3TX, 3YS, 3ZA, 3ZO, 3AHC, 4SS, 5HI, 5RK, 6ZI, 7PM, and s.w.l's. BERS195, Jim Hunt, and Dave Jenkin.

† Hans J. Albrecht, 10 Belgravia Ave., Box Hill North, E.12, Vic.
* Call signs and prefixes worked.
z — zero time—G.M.T.

SUBSCRIPTIONS

● Please pay your Subscriptions PROMPTLY when due. Failure to do so may result in the loss of valuable issues of "Amateur Radio." High costs of production make it necessary to limit the number of extra copies printed each month.

PREDICTION CHART FOR APRIL, '55



PRINCIPAL CHARACTERISTICS OF THE QQV03-20*

HEATER	Series	Parallel
Vh	12.6	6.3V
Ih	0.65	1.2A

CAPACITANCES

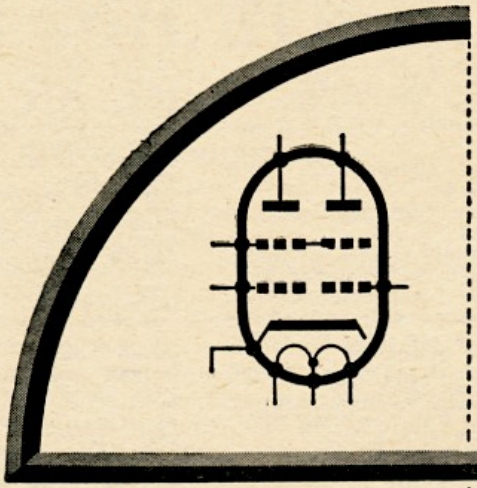
Each Section	
cg1-all	6.5 μμF
ca-all	2.0 μμF
Two Sections in Push-Pull	
cout	1.3 μμF
cin	4.0 μμF

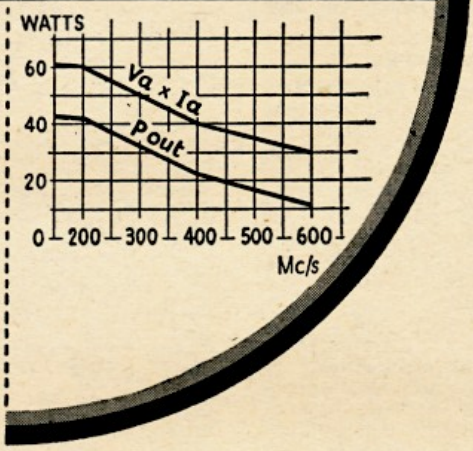
LIMITING VALUES

As Class "C" push-pull amplifier for C.W. Telegraphy or for F.M.

Va max.	600 V
pa max.	2 x 10 W
Vg2 max.	250 V
pg2 max.	2 x 2 W
Vg1 max.	-75 V
pg1 max.	2 x 0.5 W
Ik max.	2 x 55 mA
f max. (at reduced ratings)	600 Mc/s

BASE B7A





*CV2799

A high performance Double Tetrode for the new U.H.F. wave-band allocations

Providing 15 watts output at 500 Mc/s, and with an effective upper frequency limit of 600 Mc/s, this new Mullard double tetrode, the QQV03-20, is an ideal valve for communications equipment designed to operate in the new U.H.F. wave-band allocations.

As a result of new and important design features, this valve has the outstanding advantages of high anode efficiency, excellent power gain, low filament consumption and small physical dimensions. In addition, being of conventional all glass technique, the QQV03-20 does not require the complex and expensive circuitry that is normally associated with the disc-seal type of U.H.F. valves.

This double tetrode has special advantages in compact communications equipment, where, due to its small size and low filament consumption, it enables maximum savings in space to be made.

Brief technical details of the QQV03-20 are given above. More comprehensive information will be gladly supplied on request.

Mullard-Australia Pty. Ltd. *35-43 Clarence St., Sydney. BX 2006*
592 Bourke St., Melbourne. MU 2366

Associated with MULLARD LIMITED, LONDON; MULLARD OVERSEAS LIMITED

INDUSTRIAL POWER VALVES AND RECTIFIERS—TELEVISION PICTURE TUBES—ELECTRONIC PHOTO-FLASH TUBES—HEARING AID VALVES—X-RAY TUBES AND ACCESSORIES—GEIGER COUNTER TUBES—CATHODE RAY TUBES—PHOTO CELLS—IMAGE CONVERTERS—RADIO RECEIVING AND TRANSMITTING VALVES—THYRATRONS—STABILISING AND VOLTAGE REFERENCE TUBES—ELECTROMETERS—COLD CATHODE TUBES—MEASURING INSTRUMENTS—SCIENTIFIC APPARATUS—RADIO RECEIVERS—COMMUNICATIONS EQUIPMENT—ULTRASONIC GENERATORS—PERMANENT MAGNETS—MAGNETIC MATERIALS AND COMPONENTS, ETC.

MR7-53

FIFTY MEGACYCLES AND ABOVE

NEW SOUTH WALES

The February fixture of the V.h.f. Group was a Direction Finding Field Day held on 19th. There were seven stations taking part, as well as several home stations. An area within 40 mile radius of Sydney was divided into defined localities which were balloted for. A station could operate anywhere within the boundaries of the area he drew. Scoring: Each station was allotted 20 points, to which were added 3 points for locating a station within a ¼ mile, 2 points within a ½ mile, 1 point within 1 mile, and points were deducted on the same scale if the station was located by another. This proved to be a very interesting event, the results being 2ANF 23 points, 2OA 22, 2AOA 20, 2HE, 2HL and 2AJZ 19, 2AZO 18.

On Thursday, 17th February, the 144 Mc. band was wide open in the Western-South Western section of N.S.W. and through to Northern and North-Western Victoria. To use Hugo's (2WH) words, "fantastic conditions existed." Contacts made included 2AJO-3CI 5 x 7 each way on phone, 2WH-3ATN 5 x 5 each on phone, 2WH-3CI, and 2WH heard 2AJO 5 x 5 on phone. The contact between 2WH at Forbes and 3ATN at Birchip took place between 2230 and 2252 hours, the distance being about 360 miles.

The March meeting of the Group took place at the Petersham Technical College, Crystal Street, Petersham, on Friday, 4th. The lecture for the evening was given by Mr. Noel Miller, 2AQH, on the detection and suppression of radio interference, which was a very interesting and entertaining discussion on power line and sundry other sources of electrical interference encountered throughout the State on the broadcast band. Noel expressed a theory which is being confirmed in practice that a large proportion of power leak noises are due to the bolts attaching insulators, cross arms, and stays on power lines becoming loose, thus allowing the potential gradient between the line and ground to vary.

Other items of business discussed at the meeting included a motion relating to the annual election of officers of the Group, and it is now the policy of the Group to hold its election of officers at the meeting following the annual meeting of the N.S.W. Division. This means that the officers for 1955-6 will be elected at the April meeting.

A letter was also received from the Divisional Secretary stating that holders of the Limited Licence were to be admitted to the Institute as full members.

The Field Day which was mentioned in last month's notes has been postponed until the end of April due to the Group taking part in a search and rescue exercise organised by this Division. This Field Day will now be the annual Autumn Field Day and will be on similar lines to the Spring Field Day last October. Full details will be given over 2WI and mailed to country members.

The mention of country members brings to mind the policy of the Group to keep the portion of the 144 Mc. band between 144 and 144.1 Mc. clear for country contacts. Country stations who try to contact Sydney are asked to use that portion of the band as that is where most attention is given when looking for signals from the country.—2APQ.

VICTORIA

Last month proved a really excellent one for 2 mx DX with practically every country station coming into Melbourne. The outstanding performance of the month was that of Ray 3ATN (Birchip) who worked Hugo 2WH (Forbes) on both c.w. and phone, the distance of this haul is approx. 350 miles. Another c.w. and phone contact came when 2WH worked Syd 3CI at Nagambie, a distance of 300 miles. Alan 3UI at Tatura and 2AJO at Coolamon also made a contact. 3ATN also heard Ron 3ZD at Warragul. Another first is reported this month in v.h.f. activity to Max 3BQ who made a contact with Don 2RS at Albury. This makes the first Melbourne to VK2 contact. Albert 3PG and Syd 3CI also worked 2RS and Arch 3BW heard 2RS, but no contact took place.

During the month also, 3ZL, 3SE and 3PO of Ballarat, 3ANQ Warrnambool, 3AKR Westmere, 3AGD Dunkeld, 3ATN Birchip, 3DI Leongatha, 3CI Nagambie, 3UI Tatura, 3HG Coleraine and 7LZ were all heard in Melbourne at Q5. 3BQ heard 7LZ although the Launceston to Melbourne D.C.A. beacon was breaking through.

On the Fox Hunt last month, Bill 3ZAC and Bob 3OJ acted as control stations. Many thanks Bill and Bob. The Fox was successful on the first run, but on the second run bottled himself up by waiting for the Williamstown ferry which had closed down for the evening two hours previously, and on the run back along Williamstown Road was caught by Norm Dench and Ray 3KD. On the third run, 3VZ was first. The final location was at the home of Graeme, 3ZAA, where twenty-five of the Group rounded off the evening with supper and a post mortem on the doings of the evening. We wish to thank Graeme and Joan for their friendly hospitality in opening their home to us. We welcome to the Hunt for the first time Max 3ZAW, Ray 3ZAE and also Ray 3KD.

The V.h.f. Group wish to extend to Max 3BQ their best wishes on the 30th Anniversary, which occurred during the month, of his first spanning the Pacific with radio signals. Max is the most active v.h.f. worker on the band in VK3.

At last month's v.h.f. meeting, Hans 3AHH gave an extremely interesting lecture on "Electronics in Meteorology" to a capacity house. Hans went to a very great amount of trouble in preparing the lecture and even when 11.30 came around, Hans still had a considerable amount of material which he was unable to give us. It is a long time since one lecturer has been able to hold the interest of the meeting for 3½ hours straight. It was a most enthusiastic audience who passed a vote of thanks to Hans at the conclusion.

The second V.h.f. Field Day for the year was a very successful one with over 40 of the gang taking part. This is the largest number of portables to take the field in the past three years. There was intense activity during the whole afternoon, several of the stations reporting over 20 contacts. Some of the best contacts were 3UI at Mt. Hickey to 2RS at Albury; 3ATN at Birchip to 3ALW on Pretty Sally Hill, and 3QK on Churchill Island to 3LN on Mt. Macedon. Alf 3IE, with one watt on Mt. Dandenong, had some very excellent contacts. The weather was very delightful on all the mountain tops and the Field Day proved a most enjoyable one for all those who participated.

A very hearty welcome to Amateur Radio is extended to Neil Town, 3ZAT, who has just received his call sign. We will be looking forward to hearing your call from Montrose, Neil.—3LN.

SOUTH AUSTRALIA

You know how it is chaps, holidays and domesticity before all else and before you know where you are, another month has shot by and, well, I could go on for ever. Of course there has been great glee in the sub-editorial household and I'll never be allowed to forget my sub-sub-editorial lapse.

However, I haven't been unoccupied and I have some more details of the so-called "Butler overtone oscillator" (or if you like, cathode-coupled oscillator) for you. It certainly is one of the easiest to get going and the power output can be increased by making the cathode resistors much greater in value than 470 ohms. When using a 12AT7, with output on the ninth overtone, there is hardly enough to drive a double-beam tetrode into class B. There is plenty of output for the mixer stage in a xtal converter though, and the 7th overtone doubled again in the second half of the 12AT7 is quite feasible. The second disadvantage is a serious one and it can easily be missed. The xtal holder provides sufficient capacitive feed-back to take control as a type of "cathode-coupled cum Franklin" self excited oscillator, with maximum oscillation appearing at widely spaced frequencies. Under these circumstances the xtal does not effectively "lock" the frequency. The cure is effected by paralleling the xtal holder with a coil which resonates on a frequency just a little lower than the overtone required. This provides an inductive reactance and very little energy can get "around" the xtal. The coil must be phased correctly so that it does not accept energy from the plate circuits.

A recent copy of "CQ" gives further details and I found the A.R.R.L. Handbook (1953 Edition) lists the circuit in the v.h.f. section.

As Warwick has used the only notes concerning the v.h.f. activity in the S.E. area, I shall merely thank Stewart 5MS for forwarding them. Further northwards in Narracoorte the enthusiasm is mounting and Bram Jellett now has his L.A.O.C.P. and call sign. Congrats Bram; perhaps you can entice Wally to enter into competition! A xtal converter should work beautifully in front of that "750."

Heading north into the rain-stricken areas, Tom 5TL has now settled into Alice Springs and has hopes of getting back on 2 mx. It will take less time to build that converter Tom. What about a flip on 6 mx? Even an 807 will perform well there.—5XU.

WESTERN AUSTRALIA

50 Mc.: A few stalwarts still keeping the flag flying. 6BO, 6CC and 6GB have been putting in an appearance on occasions. Still little or no activity from 6HK. I must fix that feeder! 6SJ has been fairly quiet on 6 mx, but plotting great things for 2 mx.

144 Mc.: Still the band of greatest activity so far as yours truly is concerned. No new calls issued to report this month, but some of the yet-to-be active types are showing signs of progress. 6ZAS now has a beam up at 25 ft., and the rx seems to be perking as well as an AR301 can be expected to perk. The tx is under way and an RK34 has been assigned the duty of p.a. 6ZAQ threatens activity by "21st August at 8 p.m."—isn't it David? Anyway something may even have been heard from that direction by the time this appears in print.

6ZAV was treated to an invasion the other night when 6SJ, 6WJ, 6ZAZ, 6ZAQ, 6ZAS and 6HK all rolled up unexpectedly. However, after initial surprise was overcome, a fine evening was had by all. Thanks Don! This, by the way, after the gang had visited 6ZAZ's shack.

6ZAA has been plotting a spot of portable activity during lunch hours some time in March —more to report there later. Via 6ZAA comes news of activity in Kalgoorlie from 6ZAB. Howard at the moment has no one to work, but has run tests with himself—so to speak—by leaving the tx running at home and sallying forth in the car with the rx. The tx is 6N7/832 m.o.p.a. with a superregen with r.f. stage as rx. It is hoped to "xtalise" the gear before long and then perhaps arrange tests with 6DW in Bruce Rock if possible. So there you are DW!

6ZAK spends quite a lot of time just listening, with the tx in pieces awaiting re-build. 6ZAT should have finished N.S.T. by now, so may have a little more time to chase drive to the 815. 6ZAE, and likewise 6ZAR, both have some considerable time to go with the aforementioned N.S.T. and activity is therefore at a very low ebb.

288 Mc.: Signs of activity on one metre have been stirring again. 6ZAV has a very neat mod. osc. superregen set-up for the band and recently contacted 6BO over two or three miles with good signals. Tests with 6ZAA at 14 miles proved negative however. Wally has been endeavouring to put a stabilised transmission on the band, but eventually resorted to a s.e.o. Have you found the right metre yet Wal?—6HK.

NEW GUINEA

Conditions on 50 Mc. from Port Moresby during December, 1954, were very poor, with several stations heard, but not worked, namely 6HK, 6BO, 2ADT, 4NG and 4WD. After the New Year, things looked up a little allowing daily contacts with 4NG, 4WD and 4LK, but no other VKs. The ZLs broke through one afternoon only and 10 ZL1, ZL2 were worked before the band closed for good. Nothing else heard. Chased VR2CG daily, but not even a weak carrier, even when he was working 4NG at 5 x 9. Am still using same xtal converter and running 25w. to 832, but now have the 4 el. w.s. beam at 50 ft. instead of 20 ft.

Both Frank 9FN and myself are interested in working into VK on 2 mx. We both have gear going and will be ready by next Xmas to run checks with northern VK4 areas. If such can be arranged, I intend taking the SCR522 to Burn's Peak—close on 1,000 ft.—overlooking the sea to the South and setting up a 16 el. beam.

The D.C.A. G/A v.h.f. on 118 Mc. from this site works aircraft to almost 200 miles consistently with input power below the Amateur limit and merely a ground plane antenna. Truly, the aircraft are usually at 5,000 to 7,000 ft., but likewise their antenna system is low to nil gain. With antenna gains of 14 to 16 db at both ends of such a circuit, the signals would be terrific. The above performance is a normal condition unassisted by the vagaries of propagation conditions and it gives some indication of the Amateur possibilities of spanning the Coral Sea on 2 mx under those rare, but favourable, conditions.

Would like to hear from anyone interested in the above, together with their opinions as I can't claim any experience on 144 Mc., my greatest DX being QSOs with 9FN about 1 mile distant.—9DB.

FEDERAL, QSL, and DIVISIONAL NOTES

FEDERAL

N.S.W. FLOODS

Although the full story is not yet known and it will be some time before full details are available, the time is appropriate to record a word of thanks to the many Amateurs who rendered such valuable service during the recent Flood Emergency in New South Wales.

One of the striking features was how smoothly the emergency net went into operation and congratulations are therefore due to those responsible for its organisation.

In view of the fine work achieved, it seems a pity that this has led to a public expression of various viewpoints which would have been better handled through Divisional and Federal Administrative channels. Federal Executive is always conscious of its duties of representing the Federal Council when dealing with the appropriate administrations in regard to protecting the interests and presenting the Amateurs' point of view.

VK9 PAPUA AND NEW GUINEA DIVISION

Federal Executive is pleased to announce that following a vote of Federal Council, steps are being taken to complete the necessary Constitutional changes for the final implementation of the Papua and New Guinea Division.

Executive is sure that all will join with them in welcoming this new Division to the Institute. With such an enthusiastic band as Frank Nolan, VK9FN; Doug Beadel, VK9DB, and others at the helm it is certain that the Division will go from strength to strength.

The local people are most generous in the support of the local Amateurs, as the following example illustrates. During the hook-up on 7 Mc. on Sunday, the Wau members suggested that the "Teenagers" might form a club. Within 10 minutes, donations of a transceiver, batteries and some £13 in cash had been received, and all from local people who listened to the hook-up. Apart from this, club rooms, complete with free light and power, will be provided by the Wau citizens.

With such understanding and assistance from the people about, one can be certain that the new Papua and New Guinea Division will be a splendid adjunct to the Wireless Institute of Australia.

AMATEUR ADMINISTRATION APPOINTMENT

Federal Executive and members will wish to congratulate Mr. L. Pearson on his nomination to the position of Controller Radio Branch.

Mr. Pearson's long association with the Department has given him an insight into the administration of the Amateur Services and as he himself is an active Amateur, he has a personal understanding of our problems.

He follows a worthy line of predecessors in Mr. J. Malone and Mr. J. Martin, all of whom have been most helpful to the Institute. We wish Mr. Pearson a long term of office and hope that the cordial relationships will exist as previously.

O.B.E. TO MR. MALONE

Mr. J. Malone, one time Chief Inspector (Wireless) and more recently chairman of the O.T.C., has received a well merited award of the O.B.E. We congratulate Mr. Malone and feel sure that all members join with us in expressing these sentiments.

ANOTHER O.B.E.

Another O.B.E. award of interest to Amateurs generally is that of one to Mr. J. Clarricoats, General Secretary of the Radio Society of Great Britain. Mr. Clarricoats has held this secretarial position for the past 25 years and the Wireless Institute of Australia sends heartiest congratulations.

— . . . —

FED. CONTEST COMMITTEE

The Committee acknowledges receipt of the following logs for the Ross Hull Contest:—

VKs 2ABC, 2HE, 2ZX, 3KC, 3XK, 3YS, 3ZL, 4GG, 4MT, 4NG, 4WD, 5AX, 5JO, 5MK, 5QR, 5ZL, 6BO, 7LZ, ZLs 1BJ, 2ADO, 2AGD, 2DS, 3RZ, and VR2CG.

A quick perusal shows that more than 110 VKs and more than 40 ZL stations participated. VK9DB and VR2CG added interest.

— . . . —

FEDERAL QSL BUREAU

RAY JONES, VK3RJ, MANAGER

Bill Storer, VK1EG, was scheduled to QRT at Mawson on February 11 according to Roy VK4FJ. The itinerary then was to proceed to Heard Island to assist in packing up, thence to Kerguellen for fuel and water, and homeward bound. Confirmations for 53 countries of the 111 worked had arrived by February 5, but the wads I have since despatched should make the total much higher. No news has been heard of VK1EM or any of the other "abominable snow men" since their departure.

Melbourne Amateurs were delighted to meet Bill Baird, W2CPN, but better known as W9RCQ of the immediate pre-war years. Bill was a "power" in the land in those days running a kw. on all bands. His stay in Melbourne is likely to last until the end of March and he has taken the opportunity to attend the March meeting of the VK3 Division and also take part in the hidden tx hunt conducted by the V.h.f. Group. He is returning to the States by air via Singapore, Rome and other European spots. His business interests which brings him to our fair country are connected with thin plastic containers for the packaging of food stuffs. My suggestion to him that the field of plastic sausage casings had not yet been exploited, was not received with much enthusiasm.

Mike XZ2OM, in forwarding a batch of cards bemoans the poor response from VK stations and to this end only sends cards to those received. His outstanding list includes VK2s, VK3s, VK4, VK5, VK6, and VK9. His full QTH is F/Lt. Aung Myint, XZ2OM, Burma Air Force, C/o. P.O. Box 1490, Rangoon, Burma. He is always willing to oblige any VK station needing an XZ contact.

Prof. Rufino Gea Sacasa, of Madrid, Spain, has published charts and a booklet containing a new technique in predicting optimum traffic frequencies for distances from 100 to 1300 kilometres in all the world. Prices are: (1) 5 nomograms (model for teaching) and booklet, £1/18/- Sterling; (2) 5 nomograms in plastic and booklet, £10 Sterling. He may be contacted at El Encinar 10, Madrid, or through the U.R.E., Apartado 220, Madrid, Spain.

The QSL Manager for Sicily is Domenico Marino, IT1TAI, Box 300, Palermo, Sicily. His call sign is often heard on 7 Mc. c.w.

In a recent QSL to Eric BERS195, Kurt, of HB1MX/HE, states that he works from the rare country of Leichtenstein every week-end on the 80/40/20/15 mx bands on both c.w. and phone and seeks contacts with VK and ZL stations. He QSLs 100 per cent.

Roy Arnel, Ex-VK1RR, Macquarie Island, who is now a marine radio officer, was in Gladstone, Qld., early in 1955. His stay was very short and the Norwegian tanker on which he is aboard then left for Panama and Europe. In a brief note to a friend in Melbourne, Roy said he hopes to get his discharge from the tanker later this year, after which he intends to return to VK with an eye on another visit to the Antarctic. He further stated that he did not send out any QSL cards for VK1RR, but will do so after his return to this country.

— . . . —

NEW SOUTH WALES

The February meeting of the Wireless Institute (N.S.W. Division) was held at Science House, Gloucester Street, Sydney, on 25th February, 1955. The President, Jim Corbin, 2YC, took the chair a little late, owing to the Emergency which had arisen that day, and apologised for the late start.

A visitor in ex-ZS6AEV was welcomed by the meeting prior to the minutes being read by the Secretary, Harry 2ACH. Eleven new members were then admitted by the meeting.

The cancellation of the Picnic, arranged for the following Sunday at Sutherland was announced, the weather and the Flood Emergency being the contributing factors.

It is hoped that a Film Night will be arranged in the immediate future and details of the meeting at which this will be held will be given over VK2WI. Ladies will be welcome.

An Emergency Exercise was discussed and arranged, both 7 and 144 Mc. equipment will be used to form a link with the assistance of the Bushwalkers' Club of N.S.W., in an endeavour to assist in the location of lost persons. The whole scheme was outlined to the meeting and it was arranged to take place on 13th March, 1955.

An interesting lecture was given by Barry Goodman, VK2ZAG, on V.h.f. Antennae Theory, Design and Practice. Barry presented his lecture in a most interesting manner and illustrated it with charts which made his points clear to all. General antennae theory, matching and transmission lines were dealt with during the course of the lecture. A vote of thanks was tendered by Frank 2QL to Barry for his effort.

The President then outlined the procedure to be adopted by participating stations under Emergency conditions and stressed the importance of operators contacting VK2WI and getting in touch with the local Police to offer services, the question of gear to be designed was discussed, stressing the desirability of some standardisation of gear.

The Class Secretary announced that a new A.O.C.P. Class will commence on 23/4/55. Tuition includes radio theory, covering all aspects of radio, and competent instruction in morse code. Those interested should contact the Class Manager, Box 1734, G.P.O., Sydney.

The next meeting of the Division will be held on 25/4/55 at Science House, Gloucester St., Sydney. All are welcome.

ZONE NOTES

Hunter Branch.—Eighteen members and visitors attended the February meeting of the Hunter Branch at the Tighes Hill Technical College on 11th February. Two films were shown, entitled "Scientists in the Antarctic" and Turbo Jet Propulsion, these in turn being followed by a lecture given by Max Soebels, 2OT, who used a Patten generator to describe and illustrate the checking of linearity in t.v. receiver. Preparations are being made by some of the Hunter Branch members to go to the Urunga Convention at Easter, those expected to attend being Harold 2AHA, Bill 2XT, Les 2AOR, and Bob Bailey.

Many stations in the area have been operating in the Flood Emergency which is still operating as this is written.

The official station of the Hunter Branch, VK2AWX, is to be heard each Monday at 8 p.m. on approx. 7093 Kc. with full information regarding all Branch activities. The April meeting will be held on 8/4/55 at 8 p.m. at the Tighes Hill Technical College.

Zone Officer Noel 2AHH, of Kempsey, reports that there is little to report from the North Coast area this month, most of the operators being busy at this time. Definite bookings at Urunga have been made by VK3s DU, ALQ and AID, which brings us to the reminder that any of you who intend to attend Urunga should contact the organisers at once and reserve accommodation for what will be a bumper week-end. 2ARN has been on holidays at Port Macquarie recently, 2ZX soon to travel to Sydney for a rest, has had 2AWY from Orange on holidays at Inverell.

The N.S.W. Amateur Radio Co-operative is off to a good start and subscriptions are coming in at a steady rate. However, it is hoped that more of our members will send in their money to enable the board to commence on their programme and find a home for VK2WI in the near future. All communications should be addressed to the Secretary, N.S.W. Amateur Radio Co-operative, Box 1734, G.P.O., Sydney.

Busiest man in the Western Suburbs, indeed, probably in any Sydney suburb, is Chas 2AWQ, of Russell Lea. Surprising how few know there is such a suburb in Sydney. It is in the Rodd Point area. Chas is very active on 40 and can be heard working well after midnight. His shack, according to my spy, is probably the smallest, tidiest, and well-equipped as anywhere. It is built inside the garage at the rear end, sound-proof, and all the wiring is concealed behind the walls. Here Chas often does the Sunday morning broadcast for VK2WI, keeps informed on 2 mx activities, 20, 40 and 80 mx. Chas also has 40 and 2 mx portables for his car. His other activities are W.I.A. Councillor, assists Disposals Committee, Secretary of the N.S.W. Amateur Radio Co-operative Ltd., asists in the compiling and printing of the "Bulletin," and the compiling of the W.I.A. broadcast. Yes, a very keen young man, but Chas would be the first to admit he is not the only busy bee and acknowledge the willing co-operation of the keen young Councillors and members of W.I.A.

Congratulations, President Jim Corbin, on your efforts to infuse new blood in W.I.A. affairs. Congrats also to Les Page 2LP, who entered upon the state of matrimony on 5th February last. Les expects to be on 2 mx from his location at St. Ives before very long.

Welcome to the bands Ken Squires, 2SD, and congratulations on gaining the A.O.C.P. after only six months tuition at the W.I.A. Class and valuable help on c.w. by Andy 2AX. Ken was soon on 40 mx with a good signal from a temporary AT5 tx. His big rig is well on the way. Bob 2AVQ, back from holidays, was soon busy on the air, fixed up a new mast, changed his battery operated g.d.o. to a.c., did a little more work on his 2 mx converter. Indisposition has prevented 2NO from taking part in any Amateur Radio activity of late, and the two-thirds completed 2 mx rig remains on the stocks for the time being.

VK2 AMATEURS

President and Council of the N.S.W. Division W.I.A. wish to congratulate all Amateurs who took part in the recent Flood Emergency in N.S.W. To serve one's State and fellow citizens is the highest ideal of all, and the W.I.A. and its members accepted with eagerness another opportunity to serve in this capacity.

Every call on Amateur Radio was met quickly and efficiently, and the status of the Amateur and its organisation, the W.I.A., has risen considerably.

The report of the flood will be in our next issue; for now, congratulations OMs. You were wonderful.—VK2WI.

Most of the activities of some of the more distant of our members have been hidden behind conditions, but from our spies we hear that 2AYS has been busy at Broken Hill, 2ALL still working the DX and now has a cubical quad in the air. 2DQ still plays with s.s.s.b. on 14 Mc. 2DX at Mackville lost his beam again we hear from 2FM who was up that way recently .

We still require more notes each month and I take this opportunity to thank those who have helped out this year and hope that in the coming year that conditions will permit more activity.

Stewart 2PL reports that Brian Harriman and George Jones have passed their A.O.C.P. and are now awaiting for their Limited licence. I hope you boys get that 2 mx gear working soon, congrats on the ticket. Keith 2ZAA at Tumut is having good contacts on 144 Mc. to Sydney. Don 2RS at Albury is building a new tower to erect 14 and 144 Mc. beams; should be able to get that signal through to Coolamon then Don. Lyn 2AQE has acquired a new home in Wagga so we should soon hear from him from the new QTH. 144 Mc. will be the band of operation, so the v.h.f. gang should turn their beams through Wagga. News from Coolamon should get better now as more interest is being shown in operation on the "Old Man's Band."

Late news is that Alf 2BW and his XYL paid a visit to Griffith and spent a pleasant afternoon with 2PL last Sunday. Ted 2AXD at Griffith is building a new rig; hope to hear you on the air soon again.

— . . . —

VICTORIA

The March meeting of the biggest and best Division was held on 2/3/55 at the M.T.C. Before the show started, there was standing room only. The President 3TF opened proceedings and after welcoming our visitors, including W2CPN, very quickly dealt with the few items of business needing attention.

Our new members for the month are R. S. Beckett, 3WV; W. Butement, 3AD; and Associate T. K. Robb. My apologies for any misspelt names and a hearty welcome to the W.I.A. Don't forget to come to the meetings.

The main interest for the night was the films, for which we are indebted to 3BG. "Blue Ice," a coloured film on Antarctica, and the 1954 Redex Trial with a couple of others for good measure were enjoyed by all.

The next meeting, Wednesday, April 6, is the month of poor attendances. To wit, Annual Meeting. Who will ask the awkward questions this year? Come along and find out!

Due to the state of emergency in VK2, the National Field Day was postponed to a date to be announced. Let us hope the weather holds good until it is over and that there will be a few more starters. As is my custom, I have a grouch. Why must we go five miles from home? Why are all the best locations only 4½ miles away? As from now, I'm starting a campaign to have the distance reduced to ¼ mile, and Pansy had better be on my side—or else! Anyhow, that is quite far enough to push a bicycle, especially when it is loaded down with a day's rations, a Type 3 and accumulators.

The Victorian Division congratulates the VK2 boys on their magnificent work during the recent floods. They more than deserve the commendations that will be passed to them from all directions. To all those thoughtless types who caused them needless QRM, a special award of a wooden spoon should be granted. If somebody will supply the spoons, there should be little difficulty in compiling a list of the culprits. May I suggest that on future occasions, if you are in doubt about emergency traffic, you stay off the air entirely. In other words, "if you can't help, don't hinder."

At last I believe it. Single sideband can be copied. Thanks to Jack 3WR, who is using this system, I've been able to have a little practice. It's not so difficult when you know how. What does sound interesting is the application of the principles involved to a.m. rx design. What about an article for the magazine when you get it going Jack?

Does anyone know what a Coulomb is? You don't? Well ask Mrs. 3LN and be baffled with science. There is no holding Phyl now. Len offered to call and pick her up after the W.I.A. classes, but the offer was declined. Watch out Len, or you will become a permanent baby sitter. Your rig is as good as gone already. Tell me Sir, does she contemplate entering tx hunts against you or is the team to remain intact?

Now here is a gem of a story about two prominent v.h.f. men. It appears they were stationed on a couple of mountains about five miles apart, trying to make contact on 2 mx. For some reason or other, no dice, so they resorted to c.w.—on their headlights. 2 mx bah!

At last my VK5 spies are earning their money. Now have all the gen on their cricket match. I'd like to have words about the wicket keeper the phone boys had, but in the photo I have, 5UX is right behind him. Now this 5UX appears about 6 ft. 6 in. tall and must weigh 18 stone at least. If he is on Pansy's side, I'd better soft pedal on the subject. Did hear that our worthy 5PS did a good job, but after carefully studying the photo, it is obvious that a ball would have to be more than "wide" to clear the portly chap. Next year he is acting as the sight screen, at least so I hear.

Listening round the bands for personal items I glean 3YE contemplating a new rig and looking for ideas. 3AJL trying his re-built modulator; appears it refused to work when unpacked. 3ALK has been presented with another son; plans to train them all to keep a 24 hour vigil for the rare DX or operate right through the R.D. Contest. 3AHC is finding it harder to get new countries. Can see that 15 watts being jacked up somewhat. He claims he nearly lost the new tower and beam when the helicopter went his way. Should have had him round a week or two earlier and had him place the beam in position for you Harold. 3SO is back on the air after spending a couple of months in hospital. One of the first QSOs was with 3ATK and they got to reminiscing on their Service days. The QSO finished at Max's QTH.

3WL and 3WM still seem to manage to raise the DX. At least they are heard calling them. The 6 mx gang has dissolved or gone into smoke or something. What is it? No DX, no activity? More cannot be said, except it is a good band for local contacts. Alright so is 2 mx, but will somebody please tell me why 2 mx is used all the year and not 6 mx? The ball is now in the v.h.f. scribe's corner. 3ALO is expected to make a come-back in the near future, at least a new rig is under construction. 3AMZ has acquired a BC348 and Geloso v.f.o. and has gone DX happy.

80 MX TRANSMITTER HUNT

Forty-seven attended the hunt in spite of the thunder storms and heavy rains which prevailed. However, the bad weather didn't make very much difference to the actual hunt as most of the competitors eventually found their way to the location of the hidden tx. On this occasion it was hidden by Reg 3ZAD and Barry 3JB. Prior to the hunt, Reg had done some much needed repairs to the keying wheel which now sends a far clearer signal. The tx was hidden at Pound Bend, near Warrandyte, and was located under some dense scrub at the base of a 30 ft. pine tree, which supported the antenna. The winners, Jack 3VZ and Alf 3IE, took one hour and eighteen minutes to find it. Second place went to Laurie 3ALY, one minute behind the winners.

CENTRAL WESTERN ZONE

Must thank Chas for writing the notes last month while I was on my annual leave. Trev. 3ATR and his XYL are on a cruise up north, so hope the weather treats you OK. On arriving home, found that clippers and razor had been at work after a long holiday. Yes, Chas' beard was missing; think it may have been his XYL who encouraged him to take this drastic action. It certainly has made him look his old self again. Sorry chaps that these notes are so skimpy, but hope to have something better next month.

NORTH EASTERN ZONE

Jim 3JK now has two new things, a car and a signal on 2 mx, to keep Murdoch Ave. in the news, while Jack 3AKC represented them on the February hook-up. Bruce 3QC is now on 40 and 80 mx. Moving further afield, Howard 3YV would like any Amateurs passing through Wangaratta to call at 14 Reid Street and pass the time of day with him and Bruce. Henry 3HP is quite active in his various fields. Des 3BP was away on holidays when last heard of, and Ron 3AQG was thought to be getting used to the recently connected a.c. power. Col 3WQ is another very active in more than one field, while Jack 3PF is not quite so fortunate regarding Radio, but Lex 3AIL is having an interesting time, and Ken 3KR reports a good QSO with Doug, now 7IJ, on 40 mx recently. Unfortunately, Hugh 3AHF had already set up other plans when the zone hook-up was announced, and for the moment, Vic 3ABX is missing.

3CO is not quite sure yet that he will be leaving the district. Syd 3CI has quite an elaborate 2 mx antenna as his latest effort. Alan 3UI is putting the finishing touches on his mobile v.h.f. rig.

The monthly hook-up of the North Eastern Zone has been changed to 1330 hours on 3700 Kc. on the last Sunday in each month.

EASTERN ZONE

The February meeting was held at the home of Alf Mackrell. There was only a small number present due to a misunderstanding as to the date it was to be held. In future we will keep to the third Friday to avoid any further confusion. Several stations have been heard calling Lew 3AZC of late so it would appear he is active now. Ossie 3AHK is complaining of conditions on 14 Mc., but he has not got that on his own. Visitors to the zone recently were Russell 3SX, on one of his business trips; also Harry ZL4JA and Rod ZL4MY came through these parts on the last leg of a 7,000 mile hitch-hike around VK. Alf has arranged for accommodation at Warrigal Creek Station on the zone field day, to be held this month. There has been a move by some members to change the name of the club, but nothing final as yet. The March meeting was held at Maffra when some films were screened.

— . . . —

QUEENSLAND

If by this date you haven't paid your dues, you are now unfinancial. You must be financial to receive "A.R." and other Institute matters.

The Annual General Meeting will be held on Friday, 1st April, and the Annual Dinner on Saturday, 2nd April, at 6.30 p.m. at Anzac Club.

The Downs Group are convening a Convention at Palm Beach on the long week-end of May Day. The Council hopes every member possible will support this enterprise. They are donating sundry pieces of gear to them to be used as prizes. It's to be hoped the Group get the support they deserve and it is hoped that it may be one day an annual Divisional affair.

The Listeners' Group got away to a fine start with some thirty or so enthusiasts at the initial meeting. With the promise of gear, rent and assistance from members of the Division, the Group should become quite an active adjunct to the Division, if enthusiasm is a guide.

February meeting opened with some very entertaining films by Ernie 4GE. He promises another lot for next meeting. The attendance was very poor, as usual, only enough members present to make a quorum. To those who want a reminder, the time is 8 p.m. on the fourth Friday of the month, the place is the Royal Geographical Society, Ann Street, so what say we see you a little more often in the next year.

Response to the call for new Councillors was very poor, having received only three new nominations. So it looks as if we are stuck with most of the old crew once more. It's a pity as I think most members should take their turn at the helm of the Division and then they won't be so keen on the criticism of Council's actions which is usually the members' own lack of activity in the Division the cause of all complaints.

Well chaps, here's hoping for better conditions, more activity and a stronger Division, and seeing you at the Annual Meeting and Dinner.

VK9 BRANCH

By the time these notes reach the press, the VK9 Branch may well have blossomed into the VK9 Division, and thereby making the cover of the Call Book a little more accurate. At the time of writing we are awaiting only the green light from Federal Executive.

These being the initial notes from this area, I would like to take this opportunity, on behalf of the VK9 Branch Committee, of thanking each and every member for the splendid support offered in enabling the Branch and ultimately, the Division, to be born, and I feel sure that this fine spirit will continue, keeping the Division to the fore in all future activities.

Our membership of just on 100 per cent. of the current licenses is also an enviable attribute, and maintaining this figure requires no more than the spirit of friendship and co-operation that presently abounds.

The 7080 Kc. hook-up on Sunday mornings has been quite successful, the conditions normally allowing the most distant—as well as the nearer stations—to participate with good to excellent signal strengths. All in all, a large percentage join in and the net is fast developing into a pleasant Sunday morning interlude, provided Moresby has its QRM machines switched off. What say Frank?

And now for a tour round the Islands to briefly meet some of the gang: Our only guardian at Samarai, Doug 9DT, has been in the net, mostly on c.w., but recently on phone. At Rabaul, Bill 9BW and Bob 9BS always appear to be working the same DX, but as they are almost side by side it has to be that way. Quite a few DX QSLs have turned up for you both. Bill 9WP does a tremendous job with his 4 watts. Occasionally Ron 9RG is available when not moving around the plantations. What about a portable rig? John 9KT recently put the rig back together. The Rev. Father Carl, 9YT (at Lamasong), is still on a lengthy sojourn in the States. Harry 9HO, at Kavieng, has been suffering transformer troubles, though he is heard from Peter 9FP. Over to Keith 9EB at Lae; interested in your 50 Mc. plans—particularly the airborne mobile we were discussing. Arch 9GB, having returned from leave, has settled in and got things choofing.

From Madang, Carl 9CS advises that his duties exclude him from the net. Thanks for the letter Carl, all understood. At Wewak, Roy 9AU must have been thrashing the 20 mx DX during 1954 as I have a stack of QSLs off the last boat and about 90 per cent. are yours. Also Chas 9CR owns a few of the cards, guess this Wewak must have something. Don 9DS is as rare as a CT4; what about switching on the Geloso with the all-band final Don? The thing must work because I have several cards to prove it! Frank 9WZ at Momote (F/Sgt. to you) not heard of late and may have returned to a lower VK call area by this (numerically I mean!). Both Peter 9RM and Ron 9RC (at Wau) having their share of trouble lately, but who isn't?

Back in Moresby there is Alf 9AB, who has a nice rig, but says he's too busy to get on. Morrie 9MT has threatened to get on for years, but hasn't yet made it. Chas 9WG occasionally makes the grade, but not often enough. What about it Chas? Get into practice for the next R.D. Contest; we'll open the VK5 eyes this year!! Frank 9FN gets on as frequently as possible and heard chasing DX at times—of all things! Frank had plans for beams and 6 mx gear, but the new son seems to have the upper hand up there. Reg 9SP was in Moresby for a while from Omati, met him several times and heard him on the air from Badili, but not so of late. George 9GV is at present residing in Moresby.

Doug 9OQ recently joined our ranks from VK2 and I wish him, on behalf of the VK9 gang, a pleasant stay in the tropics and good hunting in the years ahead. Doug is just completing the rig and should be on the air any day. (For the information of Geoff 2AVW (ex-9GW), Doug moved in where you moved out.) Reg 9ZAL, our only limited license holder, is still working on that 2 mx gear up there on Paga Hill. Both 9FN and myself are ready to test when you are Reg. Les 9HI at present on leave in VK proper, and trust he is having a right royal time. Talking of leave, yours truly happens to be writing these notes on board the M.V. "Bulolo" on the way to VK2 on leave, but I'm not complaining. My activities have been gratifying, also keep a watch on 21 Mc. Incidentally, 9BW is the only other VK9 I've heard on this band. Was rather disgusted with 6 mx conditions this year, but better luck next time.

Well fellows, I've made a start on these notes and to keep them going would appreciate any items of interest from the gang, particularly with regard to activity or contemplated activity on v.h.f. bands, etc. Regards to all.—9DB.

— . . . —

SOUTH AUSTRALIA

The Annual General Meeting of the VK5 Division (known as the Division which has what it takes!) was held in the club rooms to a large audience. I cannot help but notice the increased interest of the members of the Division in the business of the Division, an increasing interest that is good to see and one that will keep us in a healthy condition as long as it continues. It is a little difficult to write anything about an annual general meeting because every meeting of this type runs strictly to pattern and are the same as those of twenty years ago. The general business of the night was opened by a general discussion on a proposed amendment to the constitution which would permit, at a future date, the acceptance of the holder of a Limited A.O.C.P. into the Division as a full member. The amendment was passed unanimously. Jim 5JK then brought up for discussion the matter of Civil Defence Emergency Networks, and the matter was eventually put back into the lap of Council for further discussion.

Dougal 5BY then rose to his feet to say a number of congratulatory words about Joe 5JO, who was retiring from the Council after an association with the VK5 Division dating back almost 25 years. These sentiments were echoed by all present in no uncertain manner, and I can say nothing further on this matter other than to add that the VK5 Council has lost a stalwart. Actually he is only retiring because he feels that he would like to become one of the members sitting down in the body of the hall, feeling possibly that after 25 years up with the "toffy-woffies," he had lost touch with the general membership. This meant the end of the business side of the meeting and the way was made clear for our usual three-monthly buy and sell night handled in a masterly fashion by Dougal 5BY to the intense amusement of the membership and to the financial gain of the Division as a whole.

Among the welcome visitors were the following: H. Green, J. Parry, D. Hyde, A. Humphrys, P. Cornelius, Fred 9WZ, K. Skewes, B. Forsyth, D. Caffrey from Port Moresby, F. Mines, J. Campbell, and J. Crawford. A number of these visitors attended because of the possible formation of a Short Wave Listeners' Group, and Jim Paris took them in hand after the meeting and organised a meeting for them at a later date. I was talking to him today and he tells me that a preliminary meeting of the Group has since been held, and judging by the enthusiasm displayed at this inaugural gathering, the Group will fill a much needed gap between the Amateur and the Listener, to the eventual benefit of the Division. To the discomfiture of the Council, one of these prospective members of the S.w.l. Group wrote to Jim and told him that he had read of the formation of the Group in the local paper, which means that at last I have a reader, and proof in writing at that!

SOUTH EAST AREAS

The monthly meeting of the South East boys was held on the last Thursday of the month, and as usual brought the gang out of their hiding places. No tapes being available, Tom 5TW read a short section from "London Calling" on conditions existing on the various short wave frequencies, Stuart 5MS then gave his version on the conditions existing on 20 mx, winding up the talk with a round-up on the DX to be heard for the month, supporting his comments with a batch of QSL cards just received. The meeting concluded with general comments on all things Amateur Radio, and a good time was had by all.

The news from the S.E. areas this month seems to be mainly to do with the v.h.f's. and whilst it has always been my policy to avoid treading on the corns and the territory of the v.h.f. scribe (he is a big burly brute and possessed of a violent temper), but as there has not been any v.h.f. notes in the magazine for the last two issues from VK5, I feel that I may enter where angels fear to tread!! Oh boy, oh boy! what a victory for me. Just because it is school holidays, these chalk wielders think that they can knock off everything and slacken off. Not whilst Simon Legree Parsons is around! Up Bowen, up Bowen, must I use the whip!!!!!

5TW is usually active on 144 Mc. on Monday nights for his contacts with 5CJ and 5CH, although Tom is to be found on the regular band of 40 mx if conditions permit. A newcomer to 144 Mc. is Leo 5ZAG who is using a modified 522 and is hoping to get further afield when he gets everything lined up. Bram 5ZAB, from Naracoorte, is in the process of modifying a 522 to operate on 144 Mc., and is building a shack—25 x 14 ft. 5CJ has been heard at times on his favourite hunting ground of 40 mx, but Col is another one who has been heard in schedules with the gang on 144 Mc. 5CH has been a little active on 144 Mc. from his new shack, still unfinished. 5PB has recently had his new 750 re-aligned and Wally is very pleased with the performance of the rx these days. 5KU has been heard occasionally on the air.

5FD is another backslider who has been heard on 40 mx several times this month. Associate Roy Bishop, who is a regular attendant at the monthly meetings, is extremely keen on Amateur Radio, but his business activities rather cramp his style at times. Keep up the good work Roy and have a go at the ticket, it is not that hard to get, even I got it after the sixteenth attempt! 5MS had the pleasure this month of contacting VP5AE on telephony, thus striking a double this year (1st VK on c.w. and 1st VK on telephony), apart from TF5SV, this was his only new country for the month. Stuart has built a new modulator using 811s, class B. Claude 5CH gets a second mention in the notes this month because he brought along to the monthly meeting an RAX type rx and explained its uses to all concerned. Claude uses it as a Q5-er following a BC348, and if all is to be believed it certainly delivers the goods.

This month has been a bad month for me, mainly for two reasons. The first reason being that the VK3 scribe has now become openly insulting instead of relying on veiled innuendos. The cheek of his opening paragraph in last month's magazine, "In reply to many requests, mainly from VK5," wouldn't it? Why I am speechless! If I had not lent my umbrage to F.E., I would mount it and ride away never to return. The second reason however is a horse of another colour. I was listening to Jim 5FO in contact with a VP4 recently, and the VP4 said to Jim, "What sort of a character is this Pansy that writes the VK5 notes?" Actually he did not say character, apparently he was having difficulty with his spelling in English, and used the VP4 equivalent of moron. Now this word moron had me stumped and when I asked Jim's XYL, who speaks VP4 language almost as fluently as she speaks Hindustani, what the word moron meant, she said it meant soothsayer or wise man. Now perhaps you can see just why I am so upset this month. Here I have been writing the VK5 notes for all these years with the strict intention of giving the impression that I am a first class dillpot, and the first VP4 that reads them thinks that I am a soothsayer or wise man!

The Editorial of last month's magazine was well received in VK5 and hit the nail on the head with respect to not using our bands as we should. However, the suggestion that the time is fast approaching when we will have to send our own delegate from the W.I.A. to represent Australia at the next International Telecommunications Conference was not so well received. Not that the idea was rejected, but the expense angle was the bug-bear. After all, the money for such a trip has to come from the Divisional funds, or in other words, from the pockets of the members, and VK5 for one has to be mighty careful in balancing its budget to keep the Division on an even keel, without asking its members to cough up for a trip away for any delegate, no matter how good he may be. He would only be a voice crying in the wilderness, and if the two larger world societies cannot now be expected to represent VK at the Conference, then it would be expecting too much from a lone delegate to do better. This is purely the opinion of the rank and file of VK5 and could be wrong, but no matter what VK does in the matter, or anyone else as far as that goes, Amateur Radio will take just what is dished out by those up above, and like it. It has never been any different.

Last month saw the annual cricket match played between the c.w. boys and the phone boys from VK5. This cricket match is really an annual grudge match which always seems to be won by the c.w. boys, no matter what tricks the phone boys get up to notwithstanding. The phone men, with Len 5OC as captain, won the toss and elected to bat first, to the accompaniment of cheers and jeers from the c.w. team captained by Arch 5EA. Batting with superb skill, Jim 5FO and Gordon 5XU rattled on 29 before being separated, and Len 5OC, together with Clem 5GL, paid a short visit to the wicket, being each presented with a full grown duck by the delighted c.w. team.

The next man in passed through the pavilion gates to a terrific uproar from the crowd, it was Pansy 5PS, that debonair wielder of the willow, that exponent of the leg glance, that muscular darling of the teenagers. Luke 5LL, who was wheeling him on to the ground in the oval wheelbarrow, apparently found him too much of a weight, because without warning he tipped up the wheelbarrow and marched back through the gates. "Will he break his duck?" the crowd asked, "Will he hit a six?" Their questions were not answered because one of the fieldsmen was explaining to him that the bat was held by the thin end and not the thick end! We will draw a curtain mericfully across the rest of his innings; more by luck than judgment, his bat got in the road of the ball and bounced away a couple of times for a total of four runs, and to his disgust and the crowd's delight, Les 5AX deliberately knocked his stumps flying into the air. Luke 5LL and Joe 5JO, together with Les 5UX, Gebert, Hewitt, and John 5KX, stayed long enough to knock up a total of 80 runs, which more than satisfied the phone boys who are always thankful for small mercies.

The c.w. team took the field in a very confident manner when it came time for them to bat and knocked up the excellent score of 115 runs. The driver of the bus was "rung in" for the c.w. side, as were three other visitors, and the phone men are considering whether or not a protest could be upheld. Judg-

ing by the rude remarks passed by the c.w. boys after their win, it is possible that even ruder remarks might be passed should we protest, and with this in view, the phone boys can only say, "wait until we meet again next year." Les 5AX, Arch 5XK, Rob 5RG, Arch 5EA, Martin, Forgie, Beaney, Turnbull, McCauley, Winkler, and McCauley (Don) had the distinction of playing for the winning team and our congratulations go out to them.

Well, it has come around again, next month sees me on my well earned holidays. This means that Doc 5MD will get his annual chance to have a shot at me through the magazine, and also have the pleasure of writing the weekly notes in the daily paper under the heading of "Pro 5PS." Did you ever read such a misnomer? Pro 5PS! That's the one thing that gripes him, having to sign such a pen-name, especially for the whole State to read. Anyway, don't believe a word that he says, it's a lie, it's a fabrication, it's a distortion of truth.

— . . . —

WESTERN AUSTRALIA

At the February meeting of the Division, those present were entertained with talks by Sid Smith, 6SJ, on his recent overland trip to the Eastern States, and Wally Coxon, 6AG, on "Technical Aspects of the Flying Doctor Service." Sid related some of his experiences while "on the track"—some amusing, some otherwise, and held the floor for a very interesting half an hour. His comments on the mobile gear and activity with same in VK3 aroused considerable enthusiasm amongst the gang. Wally Coxon, as engineer for the Flying Doctor Service in this State, was of course well in touch with his subject, and gave details of some of the modern technical advances being made by the service in this State.

I don't think it would be out of place at this stage to comment on the fine job done by members of the VK2 Division in the recent New South Wales flood disaster. Local press comments were very favourable and one had only to listen on the various channels in the 3.5 and 7 Mc. bands to realise the good work that was being done. Congrats!

Once again it has been found necessary to re-open the 3.5 Mc. channel for the W.I.A. news broadcasts of a Sunday morning. If you have not been receiving the 7106 Kc. channel very well, try 3750 Kc. next Sunday, and results may be a little better.

Another point concerning the broadcasts is the unwelcome news of the temporary retirement from this task of 6GH. George has other commitments which will keep him more than occupied during the next twelve months, but he hopes to be able to resume duty as broadcast officer at the end of this period. At the moment it is not clear who will fill the gap.

6BS has been heard again on 3.5 Mc., but a very elusive character is Basil these days. 6ZZ, after a burst on 7 Mc., turned up on 20 mx to give the beam a dusting. 6LM not so busy with house building as to find time for an occasional contact. 6EC also bobbed up on 80 mx again with news of t.v. progress. He and 6WJ got stuck into a discussion about sync. pulses, square waves, linearity, e.h.t. and similar t.v. like terms. 6KJ also QSOed on 3.5 Mc. and remarked that the skip on 7 Mc. was once again too long for good city/country contact.

6WL and 6WZ heard in contact on 7 Mc. recently. Harry apparently has a new mike, as what sounded f.b. quality before is better than ever! 6KO's call sign heard being mentioned by the DX on 14 Mc., so Kevin must be getting stuck into it properly. Similarly with 6DX in Kalgoorlie. No need to hear Bill himself to know he is active!

— . . . —

TASMANIA

The March general meeting attracted quite a good gathering to the club rooms, about 30 members being present. Business for the evening consisted of last minute arrangement for the Annual Meeting and Dinner, and the collecting of nominations for the Council. Several new names appeared on the nomination list and it is hoped that some will be elected, it is always a good idea to keep fresh blood coming into the Council, and by the time these notes appear the new Council will have been elected. Here's wishing them a successful term of office.

It was decided to hold a Picnic and Tx Hunt on the Sunday following the Annual Dinner for the entertainment of visitors and others, the hunt to be on foot and within a mile of the Picnic site, no holds barred! The Federal Councillor, 7BJ, gave a summary of the results of the recent enquiry into the method of scoring in the R.D. Contest, and also formally moved the motion to amend the Constitution to make holders of the Limited A.O.C.P. eligible for full membership. At the conclusion of the business, a lecture on "Feedback in Amplifiers" was given by Mr. Bruce Kline, Engineering Chief of 7HT. Mr. Kline traced the history of feedback (both wanted and unwanted) and gave typical circuits with their effects. A vote of thanks, proposed by 7AL, was carried with acclamation.

In last month's notes I omitted to include a comment on the excellent assistance given to the v.h.f. communications crew by Mr. Barney Watson on last Regatta day. Barney, always ready to help, provided transport, battery charging and a.c. power for the shore end, thus making the whole job so much easier. Barney is also a member of the Lecture Committee which has provided so many good lectures lately. Tiny 7JD shattered his long silence recently when he came in on the Sunday 40 mx hook-up. So the new rig must work OK although there's been large bumps of silence since, so maybe something blew up.

Jim Millway, of the Central Group at Tarraleah, who recently gained the Limited A.O.C.P., is on a visit to VK5 land. Congrats to you on the licence Jim. Within the month it is expected that Doug 7AB and Ted 7EJ will be moving to Hobart to take up residence. Doug was instrumental in designing and building a v.h.f. mobile rig for the Devonport Fire Brigade recently. Another Doug—7DZ—hero of the recent "sleep in the car" episode, will be on the way to England in a week or two. Max 7ML is now working on an all-band rx to go with his recently built miniature tx. Associate Vance Lohnman having fun with v.h.f. taxi equipment and would welcome suggestions as to how to eliminate ignition noise from cars who sit under the rear bumper bar.

As this is the last time that I will be writing these notes, I wish to take this opportunity of thanking all who have handed on bits of news, etc., and to wish the incoming Sub-Editor good hunting.—7LE.

NORTHERN ZONE

For our February meeting a very welcome visitor was Ed Bovis, ex-G3EXD, who has settled in the beautiful Tamar Valley in Australia's premier State and is awaiting receipt of his gear from G land. Hope to hear you with a VK7 call sign Ed. During Feb., Mac 3AKM spent his holidays in Northern Tasmania and managed to see a few of the gang. An overnight visitor to Launceston was DL6YU, Hans Moldner, who has been on a wool-buying tour and is returning via ZL and U.S.A. Hans runs a kilowatt into a pair of p.p. 813s on 80, 40 and 20 mx, using a separate Command tx as v.f.o.-exciter on each band. He is on the lookout for VK and ZL contacts.

Of local interest, 7LZ has modified his 2 mx tx to run 100w. and has a good signal in this area. There has been quite a spate of 2 mx activity with building of "personal portable" 2 mx rx's and highly directional beams to try and track from that master of evasion, 7XW. Three times in February Chris conducted hidden tx hunts, which are certainly stimulating local interest in the zone.

NORTH WESTERN ZONE

Recent visitors to the North Western Coast were Harry ZL4JA and Rod ZL4MY who were hitch-hiking round Tasmania and appeared very impressed with what they saw. Another visitor was Keith 3HK who was travelling in a small car with a portable rig on all bands and seemed to be enjoying himself.

Members of this zone recently made a trip round the Hydro development schemes in the central highlands of Tasmania where a large gathering at the QTH of Reg 7WN at Tarraleah included Jim 7ZAM, of Tarraleah, Bill Ion and Associate Wolfgang, of Bronte, Harry 7BR, Len 7LS, Charlie 7CF and Gill, of Queenstown, Denis 7DR and XYL, of Ulverstone, and the N.W. party included Syd 7SF, Ellis 7WA, Roy 7RN and Associates K. Hancock and R. Wilson. Refreshments were served by the ladies and were very much appreciated.

Sam 7UW is home from hospital now and thinking of bigger and better ideas for DX. Murray 7MR is still on the sick list, but we hope he soon recovers. It is rumoured that our zone president is being transferred to Hobart for which we are very sorry, but hope he at least gets a rig going on 80 mx to get in touch with us occasionally. Ellis 7WA has just completed a new 8JK aerial and is in the process of building a new final with an all-band tank. It is rumoured that 7SO will be on the air soon with 100w. of r.f. on his aerial and also that 7SF has gone mad on racing cars; watch out for your neck Syd.

CORRESPONDENCE

QSL CARDS WANTED

Baling Estate, Kuala Ketil,
Kedah, Malaya.

Editor "A.R.," Dear Sir,

I should like to make an appeal through your correspondence column to ask the VK Amateurs to try and improve the QSL situation.

In countries such as Malaya, there is a large turn-over of Amateur population, for example few Forces Amateurs are active here for more than two years. As QSL Manager for VS2, I find it very difficult to trace these Amateurs after they have left.

Recently I received a batch of about 50 cards from the VK4 QSL Bureau in Brisbane. Of these cards, which took only five weeks to arrive by sea mail from Australia, a few represented contacts early in 1954, the majority in 1953 and some in 1952. Among them were cards from a s.w.l. listener in Brisbane itself giving signal reports on contacts made in 1953 and 1952. He must be a very optimistic chap if he expects verifications after all this time.

In the last six months I have received cards from the Outgoing Bureaux of only three VK sections, where are the rest? Surely they must have cards for VS2s.

Surface mail postage is not expensive and this small Society manages to clear its outgoing QSL Bureau every month. I am sure the VKs should be able to do it at least every three months, even if there is only say 10 cards, or is this asking too much?

How about it chaps, remember the fellows with the QRP stations do appreciate a QSL card and get disheartened if it takes years to arrive or does not come at all.

I send out my own QSLs for the VKs each month and after two years, the results are as follows:

Section	Cards Sent	Cards Received
VK1	5	1
VK2	54	13
VK3	69	11
VK4	34	11
VK5	29	11
VK6	29	8
VK7	5	1
VK9	10	1
	235	57

A pity so few received. I would be very grateful for some VK1 and VK9 cards for DX C.C.

—J. C. PERSHOUSE, VS2DQ.

HAMADS

1/- per line, minimum 3/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by 8th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line. Dealers' advertisements not accepted in this column.

EXCHANGE: MN26C Compass Receiver, new, complete, for ARB Receiver complete in good condition. R. Campbell, Box 42, Sorrento, Vic.

FOR SALE: Band switched Transmitter, all bands 10 to 80. Final tube is 807 with 600 volts. Outfit complete in table cabinet, v.f.o., modulator and power supply being built in. Professional appearance and performance. Contains total of 18 tubes. Price £60. Buyer pick up. J. E. Rogers, 61 Broadway, Yallourn, Vic.

FOR SALE: Steel Tower 36 ft. with timber boom, also 52 ft. 2-piece Timber Mast. Best offer. S. R. Coleston, 6 St. Vincents St., Glenhuntly, Vic. UL 5595.

FOR SALE: Xtals, unmounted, 300-465 Kc., 10/- ea. Relays, 6,500 ohm, d.p.d.t., £1 ea. 750 ohm Relays, s.p., 12/6 ea. Odd Relays with slugs, 7/6 ea. 10 position Uni Selector, 6 volt solenoid operated, suit model train auto signals, etc., £2 ea. Robust chassis, 3½ x 16½ x 2¾ in. with cover, grey crackle finish, £1 ea. A. W. Oakes, 1 Palmer Street, Oakleigh, Vic. Phone: UM 3178.

Homecrafts PTY. LTD.

AMATEURS' BARGAIN ★ CENTRE ★

EIMAC HI-VOLTAGE RECTIFIERS

KY21
RX21
100R **15/-** each

Postage: Victoria 1/7, Interstate 3/5

MERCURY SWITCHES

5 Amps. .... **12/3** plus tax
10 Amps. .. .. **15/–** plus tax

Postage: Victoria 5d., Interstate 5d.

3" EXTENSION SPEAKERS

Suitable for Monitors, etc.
Complete in Cream Plastic Case.
25/- plus tax

Postage: Victoria 1/6, Interstate 3/6.

300/12 CONDENSERS

5/- dozen

C.R.O. SOCKETS

Suit 5BP1

2/6 each

Postage: Victoria 11d., Interstate 11d.

PM104 VIBRATORS

6 Volt Synchronous

9/11 each

Postage: Victoria 1/3, Interstate 1/3

KINGSLEY KBS2 COIL UNITS

Comprising Aerial, R.F., and Osc. stages. Four bands: B/C, 31 metres, 25 metres, and 19 metres.

£9/12/- plus tax

Postage: Victoria 2/-, Interstate 4/4

Build your own CLOCK RADIO

Genuine Smith Movements, complete with wiring diagram

84/4 plus tax

Postage: Victoria 1/3, Interstate 1/3

HOMECRAFTS for all High Quality Audio Equipment:

WILLIAMSON AND LEAK AMPLIFIERS
WHARFDALE AND BAKER SPEAKERS
THORENS MOTORS AND PLAYERS

Vented Enclosures — Speaker Divider Networks

Write for Quotations on anything connected with Hi Fidelity Sound

A & R ULTRA LINEAR TRANSFORMERS

Type 931, 20 watts, 4,500 ohms primary, 15 or 2 ohms secondary.

£6/18/8 plus tax

Postage: Victoria 3/4, Interstate 7/6

UNIVERSITY METERS

0-1 Ma., 4 inch square

95/- plus tax

Postage: Victoria 1/7, Interstate 3/5

SELENIUM RECTIFIERS

Suitable for Battery Chargers, etc. 6 volts at 4 amp., or 12 volts at 2 amp.

35/7 plus tax

Postage: Victoria 1/7, Interstate 3/5

ADAPTOR PANELS

Suit VCT Testers

For checking Miniature Valves.

115/- plus tax

Postage: Victoria 1/7, Interstate 3/5

RELAYS

110 Ohms, 4½ Volts

8/- plus tax

Postage: Victoria 11d., Interstate 11d.

RECORD PLAYER CASES

Smart Finish in Plastic Cloth

82/6 plus tax

Suit Record Changers

95/4 plus tax

Freight Forward.

PALEC WAFER SWITCHES

1,000 Volt 10 Amps. Rating

1 Bank 1 x 12 .. **10/–** plus tax
1 Bank 2 x 6 .... **10/6** plus tax
1 Bank 4 x 3 .... **11/–** plus tax
3 Bank 4 x 3 .... **21/6** plus tax

Postage: Victoria 1/3, Interstate 1/3

ALUMINIUM CHASSIS BLANKS

5 x 3 ..	**4/6**	13 x 7 ..	**9/9**
6 x 4 ..	**5/–**	13 x 10 ..	**12/–**
8 x 5 ..	**6/9**	17 x 8 ..	**15/–**
10 x 6 ..	**8/–**	17 x 10 ..	**16/6**
11 x 8 ..	**9/9**	17 x 12 ..	**18/6**

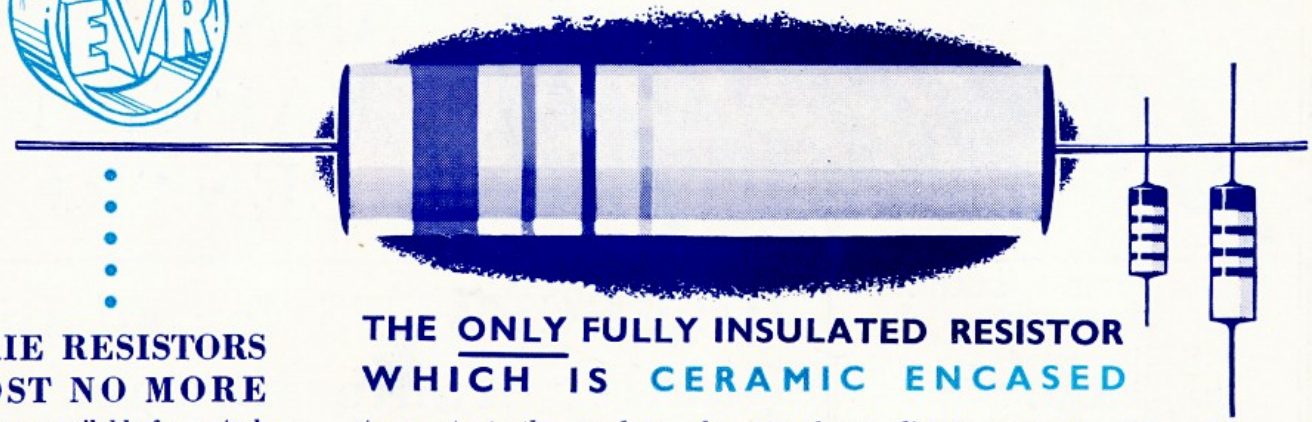
All prices plus sales tax.

CHASSIS HOLE PUNCHES

1-13/16 inch .... **39/6** plus tax
Postage: Victoria 1/7, Interstate 3/5
3/4 inch .... **28/9** plus tax
5/8 inch .... **20/8** plus tax
Postage: Victoria 11d., Interstate 11d.

290 LONSDALE STREET, MELBOURNE — FB 3711

ERIE RESISTORS..



ERIE RESISTORS COST NO MORE

and are available from stock throughout Australia through Selected Wholesale Houses in all States.

Useful Technical Data is available on request.

THE RESISTOR WITHOUT A DOUBT—FIT ERIE AND BE SURE!

THE ONLY FULLY INSULATED RESISTOR WHICH IS CERAMIC ENCASED

to protect the carbon element from direct contact with paint, lacquers and other finishes which have a detrimental effect under extremes of temperature.

★ Made in England, Canada, and the U.S.A. to stringent Inter-Service Specifications.

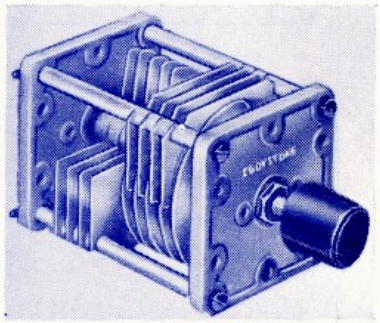
★ Erie Standard Solid Moulded Carbon Resistors also conform fully to R.C.S.C. Specification BS/RCS/112 Grade II.

Only the best in materials and manufacturing methods go into these Resistors. They are made to give maximum heat dissipation—low noise content—and to keep stable values throughout their long service life. All types are conservatively rated and are available throughout the entire preferred value range.

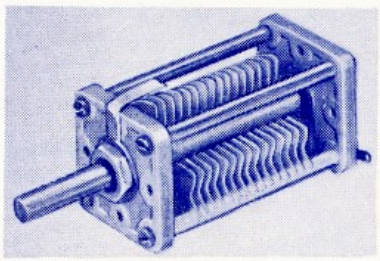
V.H.F's. DEMAND GOOD TUNING

For many years EDDYSTONE has offered the Amateur an excellent range of low loss, high performance transmitting and receiving variable condensers. **Every** need of the Experimenter is now catered for in Differential, Neutralising, Butterfly, Split-stator, and High Stability Single Section Eddystone Condensers of solid construction employing heavily silver plated brass plates and ceramic end plates.

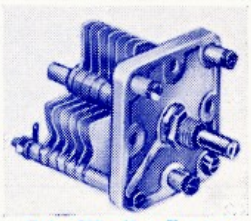
Your Distributor will be pleased to show you the full range of Eddystone Condensers and forward a Catalogue on request.



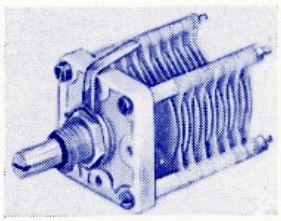
Cat. 832—50 x 50 pF. max. Transmitting, 0.080 inch spacing, 2,500 volts.



Cat. 738—100 pF., 0.030 inch spacing, double end plates and bearings.



Cat. 815—60 pF. max. Transmitting, 0.048 inch spacing, 1,600 volts.



Cat. 587—15 x 15 pF. Butterfly Type, 0.052 inch spacing.

EDDYSTONE
TRANSMITTING AND RECEIVING CONDENSERS

SOLE AUSTRALIAN AGENTS:

R. H. CUNNINGHAM PTY. LTD.
118 WATTLETREE ROAD, ARMADALE, S.E.3, VIC.
and 184 VICTORIA ROAD, DRUMMOYNE, N.S.W.